ZebraNet® 10/100 Internal Print Server

for ZM400™, ZM600™,
GK420™, and GX420/430™

User Guide

Zebra

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About This Document

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Who Should Use This Document

This user guide is intended to be used by any person who will install and work with the 10/100 Internal PS for the ZM400, ZM600, GK420, and GX420/430 printers.

How This Document Is Organized

This user guide is set up as follows:

Section	Description
Introduction	This chapter provides a high-level overview of the 10/100 Internal PS device, installation types, standard network configurations, and how to work with 10/100 Internal PS.
10/100 Internal Print Server	This chapter provides you with details on the 10/100 Internal PS features.
Getting Started	This chapter provides you with information and procedures for working with the most frequently used 10/100 Internal PS features.
Installation	This chapter provides information on the 10/100 Internal PS, and how to install ZebraNet Utilities and the ZebraNet View Java Applet.
ZebraLink WebView	The appendix provides you with detailed information that allows you to use the enhanced functionality of your ZebraLink-enabled printer with the 10/100 Internal PS.
ZebraNet Utilities	The appendix provides you with details on ZebraNet Utilities, the software suite of printer administration tools that complements and enhances both ZebraLink and the ZebraNet family of connectivity products.
Hardware Troubleshooting	This appendix provides you with solutions to known issues.
Print Protocols	In this appendix, an exercise is provided to experiment with File Transfer Protocol (FTP) support.
Print Queues	This appendix provides information and instructions on configuring your print queue.
Frequently Asked Questions	This appendix provides a group of frequently asked questions (FAQs) about 10/100 Internal PS.
Glossary	This appendix is a list of terms and associated definitions.

Contacts

You can contact Zebra Technologies Corporation at any of the following:

Web Site

Visit us at: http://www.zebra.com

Technical Support via the Internet is available 24 hours per day, 365 days per year. Go to http://www.zebra.com/support.

The Americas

Regional Headquarters	Technical Support	Customer Service Dept.
Zebra Technologies International, LLC 333 Corporate Woods Parkway Vernon Hills, Illinois 60061.3109 U.S.A T: +1 847 793 2600 Toll-free +1 800 423 0422 F: +1 847 913 8766	T: +1 877 ASK ZEBRA (275 9327) F: +1 847 913 2578 Hardware: ts1@zebra.com Software: ts3@zebra.com	For printers, parts, media, and ribbon, please call your distributor, or contact us. T: +1 877 ASK ZEBRA (275 9327) E: clientcare@zebra.com

Europe, Africa, Middle East, and India

Regional Headquarters	Technical Support	Internal Sales Dept.
Zebra Technologies Europe Limited Zebra House The Valley Centre, Gordon Road High Wycombe Buckinghamshire, HP13 6EQ, UK T: +44 (0)1494 472872 F: +44 (0) 1494 450103	T: +44 (0) 1494 768298 F: +44 (0) 1494 768210 Germany: Tsgermany@zebra.com France: Tsfrance@zebra.com Spain/Portugal: Tsspain@zebra.com All other areas: Tseurope@zebra.com	For printers, parts, media, and ribbon, please call your distributor, or contact us. T: +44 (0) 1494 768316 F: +44 (0) 1494 768244 E: cseurope@zebra.com

Asia Pacific

Regional Headquarters	Technical Support	Customer Service
Zebra Technologies Asia Pacific, LLC 120 Robinson Road #06-01 Parakou Building Singapore 068913 T: +65 6858 0722 F: +65 6885 0838	T: +65 6858 0722 F: +65 6885 0838 E: China: tschina@zebra.com All other areas: tsasiapacific@zebra.com	For printers, parts, media, and ribbon, please call your distributor, or contact us. T: +65 6858 0722 F: +65 6858 0836

Document Conventions

The following conventions are used throughout this document to convey certain information:

Alternate Color (online only) Cross-references contain links to other sections in this guide. If you are viewing this guide online, click the blue text to jump to its location.

Command Line Examples All command line examples appear in `Courier New` font. For example, type the following to get to the Post-Install scripts in the `bin` directory:

```
Ztools
```

Files and Directories All file names and directories appear in `Courier New` font. For example, the `Zebra<version number>.tar` file and the `/root` directory.

Cautions, Important, Note, and Example

Caution • Warns you of the potential for electrostatic discharge.

Caution • Warns you of a potential electric shock situation.

Caution • Warns you of a situation where excessive heat could cause a burn.

Caution • Advises you that failure to take or avoid a specific action could result in physical harm to you.

Caution • Advises you that failure to take or avoid a specific action could result in physical harm to the hardware.

Caution • Advises you need to wear protective eye wear.

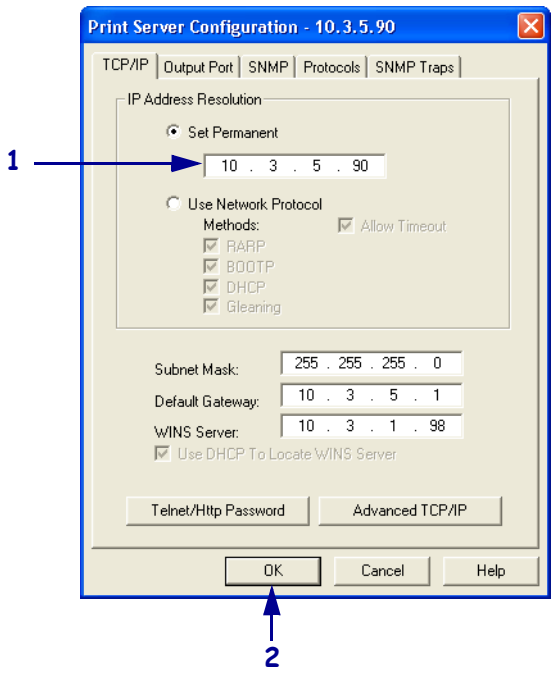
Important • Advises you of information that is essential to complete a task.

Note • Indicates neutral or positive information that emphasizes or supplements important points of the main text.

Example • Provides an example, often a scenario, to better clarify a section of text.

Illustration Instructions Used when an illustration contains either information about a dialog box or step(s) to accomplish in a dialog box.

One illustration instruction identifies a section of the dialog box and the other shows steps to follow.



1	Set Permanent text-box.
2	**a.** In the Set Permanent text-box, type in the print server's IP address. **b.** When you are finished, click OK.

Related Documents

The following documents might be helpful references:

- *ZebraNet Wireless Print Server User Guide*
- *ZPL II® Programming Guide For x.10 through x.13 Firmware*
- *ZPL II® Programming Guide For x.14 Firmware and Later*
- *ZebraNet PrintServer II™ Installation and User Guide*
- *EPL™ Programming Guide*

1 Introduction

This chapter provides a high-level overview of the 10/100 Internal PS device, installation types, standard network configurations, and how to work with 10/100 Internal PS.

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Overview

The 10/100 Internal Print Server (PS) is an optional factory- or field-installed device that connects the network and your ZebraLink-enabled printer. 10/100 Internal PS provides you with a browser interface for printer and print server settings. If you use the ZebraNet Utilities, you can easily access the specialized features of a ZebraLink enabled printer. For details, see *ZebraNet Utilities* on page 97.

Important • You can download the most recent version of ZebraNet Utilities from http://www.zebra.com/printer_management.html.

Components

Figure 1 shows the components of a printer equipped with a 10/100 Internal PS. Table 1 identifies the various components and the functions each performs.

Figure 1 • Components

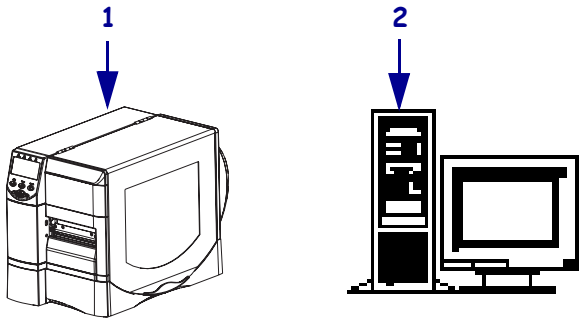

Table 1 • Components and Functions

1	**Printer with 10/100 Internal PS**—10/100 Internal PS gives your printer these features: • Print server and printer setup using a browser • Remote monitoring and configuration capability of the 10/100 Internal PS using a browser • Alerts • The ability for you to send unsolicited printer status messages via email-enabled devices
2	**ZebraNet Utilities**—ZebraNet Utilities is a suite of software programs that work with 10/100 Internal PS and enhance the features of ZebraLink resident within ZPL-based printers. The features include the following: • ZebraNet View allows you to locate printers automatically. ZebraNet View searches on parameters such as IP address, subnet, printer model, printer status, and many other user-defined characteristics. It also offers powerful device management capabilities. • ZebraNet Alert lets you configure multiple event alerts per device with different alerts directed to different people. You are notified of alerts from either visual or audio cues. You can also generate advanced alert reports. • ZebraNet View Java Applet is a Java-based version of the popular ZebraNet View. It gives you ZebraNet View capabilities in a non-Windows environment. • ZebraNet Connect IP allows you to discover a print server on a network and define a port for printing.

Requirements

This section lists the minimum requirements for 10/100 Internal PS, which include firmware, software, browser support, protocols, and hardware.

Firmware

Table 2 shows the appropriate firmware version for each printer.

Table 2 • Firmware Version by Printer

Printer	Firmware Version
ZM400	V53.15.x or later
ZM600	V53.15.x or later
GK420	V61.15.x or later
GX420/430	V56.15.x or later

Important • You can upgrade your firmware by visiting our web site: www.zebra.com/firmware

Software

These are the platforms supported by ZebraNet Utilities:

Microsoft® Windows® 95/98/Me/NT/2000/XP:
- Client mode for peer-to-peer printing via TCP/IP
- Print Protocols & Methods (all simultaneously active):
  - TCP/IP
  - LPR/LPD
  - Telnet
  - FTP
  - Raw printer port (port 9100)

The ZebraNet View Java Applet is supported by most Java-enabled browsers:

UNIX® Linux, and other systems supporting TCP/IP:
- Print Protocols & Methods (all simultaneously active):
  - TCP/IP
  - LPR/LPD
  - Telnet
  - FTP
  - Raw printer port (port 9100)

Browser Support

- HTML v3.2 or higher
- Internet Explorer or Netscape Navigator

Protocols

- TCP/IP: ARP, RARP
- TCP/IP & UDP: DHCP, BOOTP, SNMP v1.0
- HTTP v1.0

Hardware

The following are the 10/100 Internal Print Server options available for different printer models:

Printers	External	Internal Field Upgrade	Internal Factory
ZM400	•	•	•
ZM600	•	•	•
GK420			•
GX420/430			•

Compatibility

This section identifies the various components that are compatible with 10/100 Internal PS.

ZebraNet Wireless Print Server 10/100 Internal PS is fully compatible with the Wireless Print Server.

ZebraNet Wireless Plus Print Server 10/100 Internal PS is also fully compatible with the Wireless Plus Print Server.

Software IBM®: Tivoli® v7.1.3, HP®: Web JetAdmin™ v7.0, OpenView™ V6.4, and any SNMP management application via Zebra Management Information Base (MIB) all work with 10/100 Internal PS.

Technical Specifications for the 10/100 Internal PS

General Specifications			
Network Connection		Ethernet 10BaseT and 100BaseT UTP RJ-45 connection Half and Full Duplex Communications	
User Interface		A single (two element) LED activity indicator: • bi-color display of operational status (solid green or solid amber) • bi-color display of speed and network activity (flashing green or flashing amber)	
Height (external dimensions)		0.5 in.	13.4 mm
Width (external dimensions)		2.2 in.	55.9 mm
Length (external dimensions)		3.7 in.	92.9 mm
Weight		0.9 oz	26 g
Temperature	Operating	32° to 140°F	0° to 60°C
	Storage	–40° to 140°F	–40° to 60°C
Relative Humidity	Operating	20% to 80%, non-condensing	
	Storage	5% to 85%, non-condensing	
Warranty		One year	

Notes •

2

10/100 Internal Print Server

This chapter provides you with details on the 10/100 Internal PS features.

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10/100 Internal PS Features

This section covers features available for the 10/100 Internal PS *only*, not the printer's features. Some of the features you access in this section prompt you to enter the default user ID and password, as follows:

- **User ID**: `admin`
- **Password**: `1234`

Status and Configuration

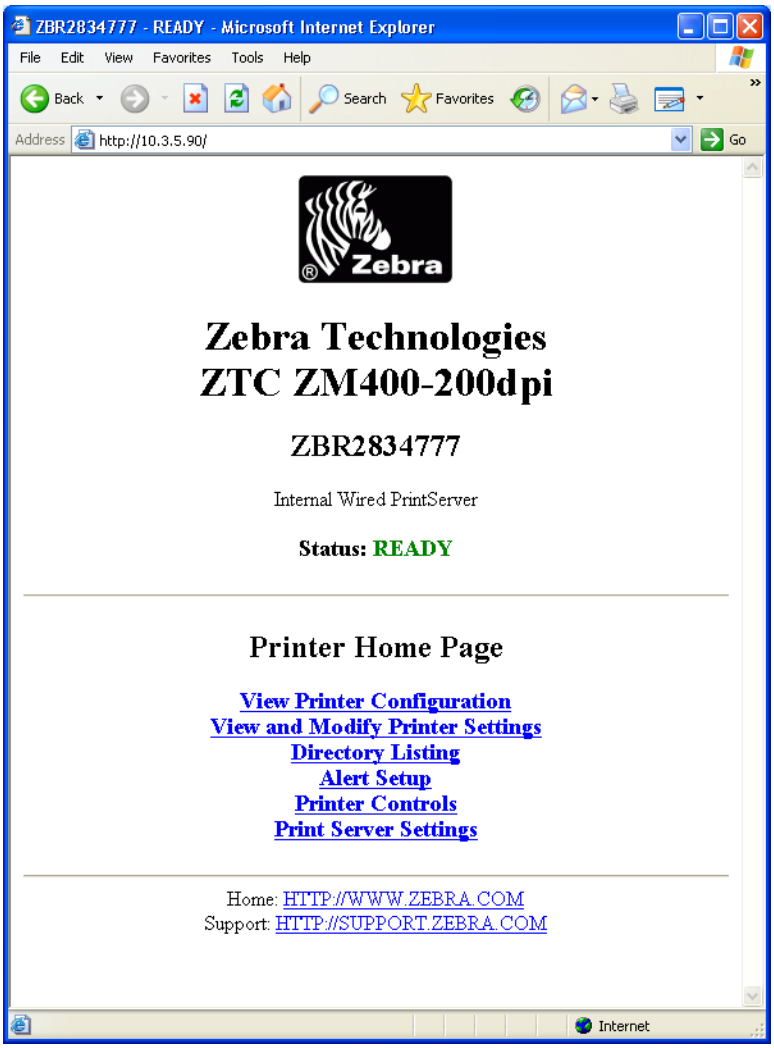
The steps that follow are based on the navigation of a ZPL printer.

Important • You can upgrade your firmware by visiting our web site: www.zebra.com/firmware.

To access the print server settings, complete these steps:

1. Open a Web browser.
2. In the Address text-box, type your printer's IP address, and press Enter.
   The Printer Home Page opens.

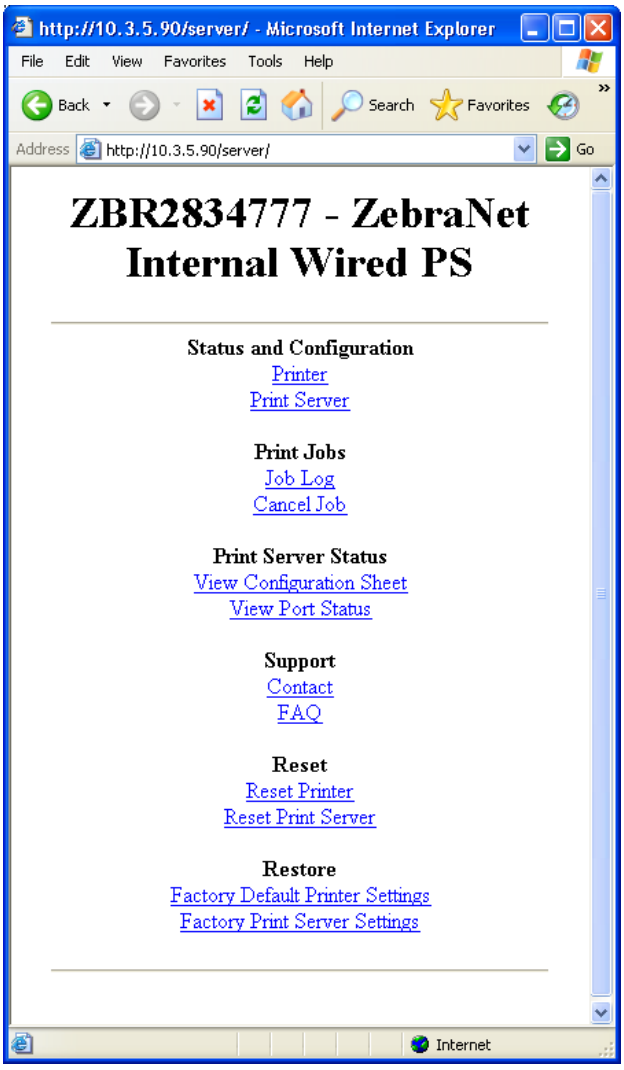
Figure 2 • Printer Home Page



3. From the Printer Home Page, click Print Server Settings.

   The Print Server Settings Page opens.

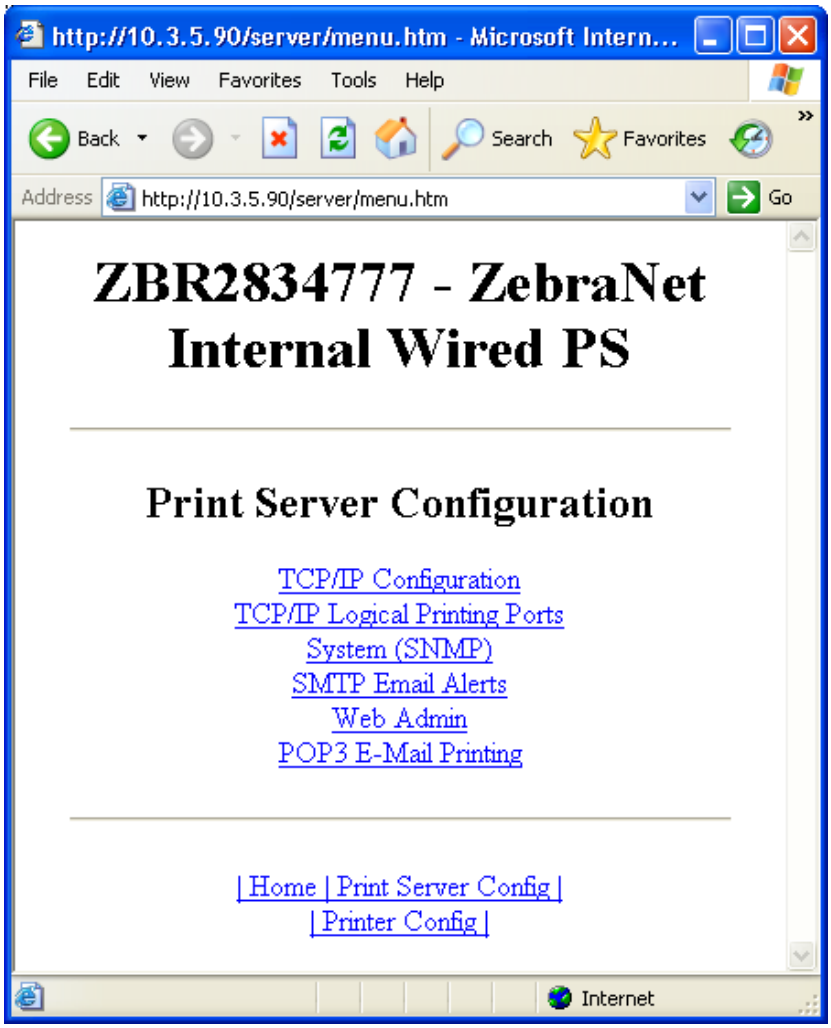
Figure 3 • Print Server Settings Page



4. From the Print Server Settings Page, click Print Server.

   The Print Server Configuration page opens.

Figure 4 • Print Server Configuration



5. In the Print Server Configuration page, you have a menu from which to choose. Table 3 identifies each menu option page.

Table 3 • Menu Options

TCP/IP Configuration

You can change the TCP/IP configuration of the 10/100 Internal PS.

- **IP Address:** Use this feature to set the IP address if using the Permanent addressing method.
- **IP Address Resolution:** Use this feature to select the addressing method to use (Dynamic or Permanent).
- **Dynamic Protocols:** Use this feature to select the Dynamic Addressing method to use at startup. Choices include RARP, BOOTP, DHCP, Gleaning or Default Address.
- **Subnet Mask:** Use this feature to set the subnet mask. The subnet mask must follow the format XXX.XXX.XXX.XXX, where each XXX is a number between 0 and 255.
- **Default Gateway:** Use this feature to set the default gateway. This gateway will be used whenever messages need to be sent to another network. This gateway address must follow the format XXX.XXX.XXX.XXX, where each XXX is a number between 0 and 255.
- **WINS Server IP Address:** Use this feature to set or view the IP address of the WINS Server.
- **Connection Timeout Checking:** Use this feature to enable or disable the Connection Timeout feature. The timeout is used to close network TCP/IP connections that are idle for more than the number of seconds entered in the Timeout Value.
- **Timeout Value (secs):** Use this feature to set the Connection Timeout Value. The Valid range is 10 to 3600 seconds. The default is 300 seconds.
- **ARP Broadcast Interval (mins):** Use this feature to set interval for sending an ARP Broadcast. The valid range is 1 to 30 minutes. Address Resolution Protocol (ARP) broadcast packets allow other network devices to associate the print server's IP Address with its hardware address.
- **Base Raw Port Number:** Use this feature to set the raw TCP port that the print server will use for printing tasks. The default is port 9100.

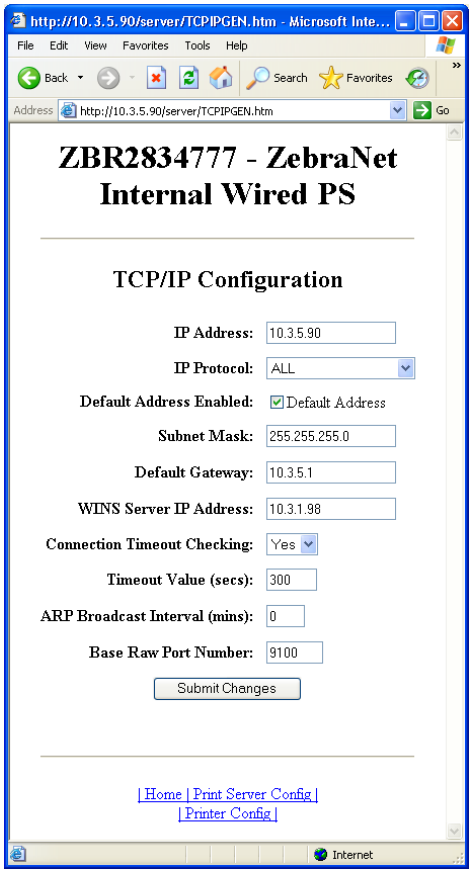


Table 3 • Menu Options (Continued)

TCP/IP Logical Printing Ports

Logical printers allow you to set up multiple pre- and post-processing configurations for each output port. Each logical port configuration can perform the following:

- Add user-configured strings before and after the print data.
- Remove unwanted characters from the beginning of the print data.
- Four logical printer configurations are supported for each output port on the printer. The configurations can be assigned to any port, and all of these configurations can be assigned to a single output port.

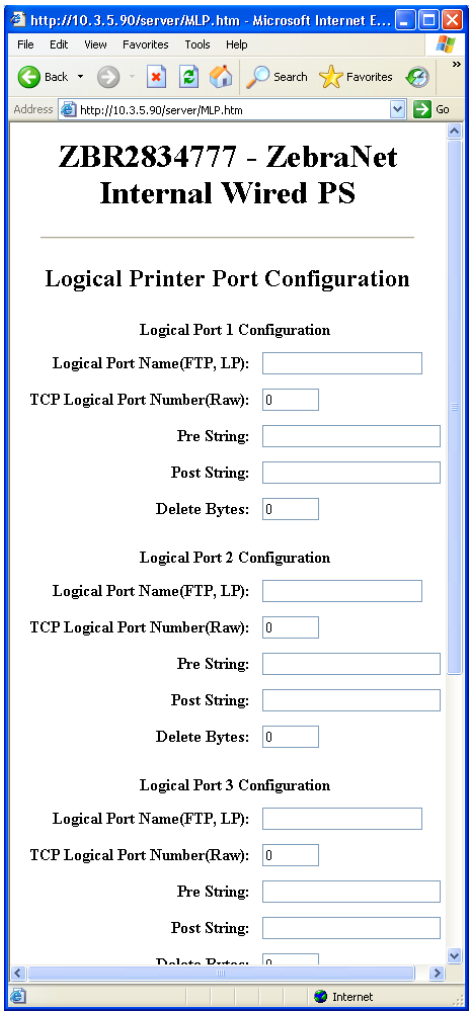


Table 3 • Menu Options (Continued)

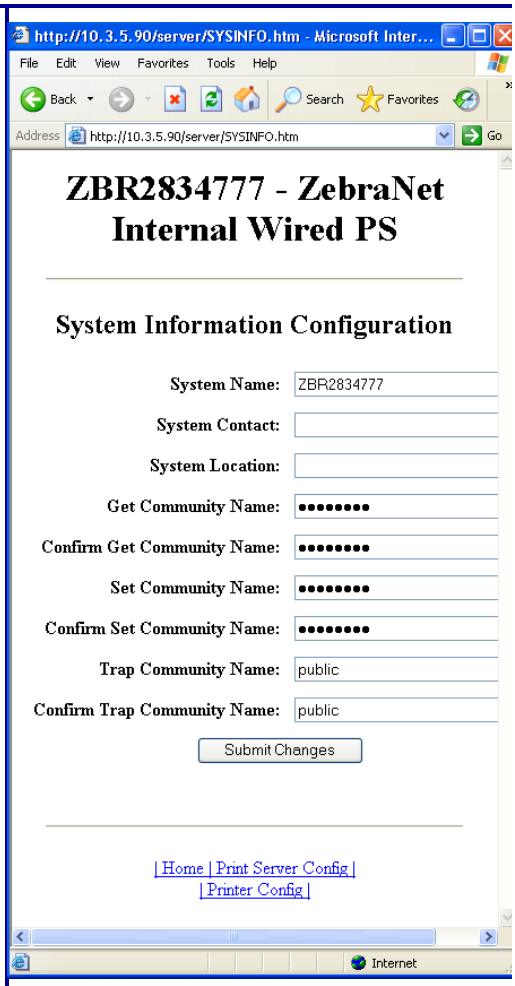
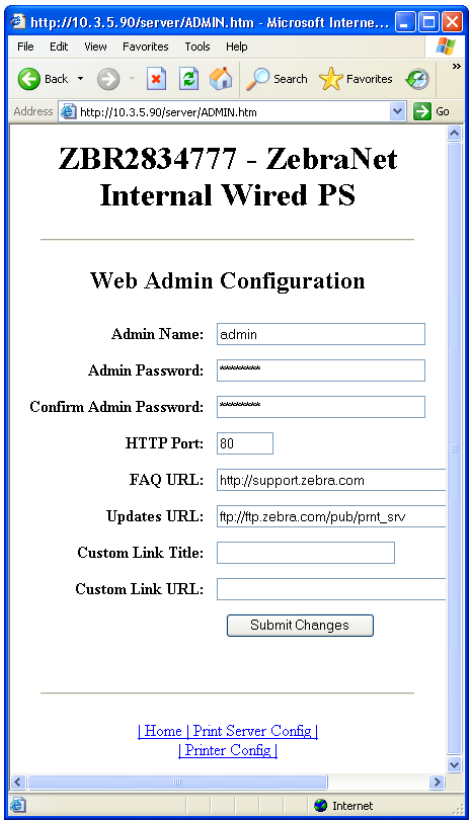
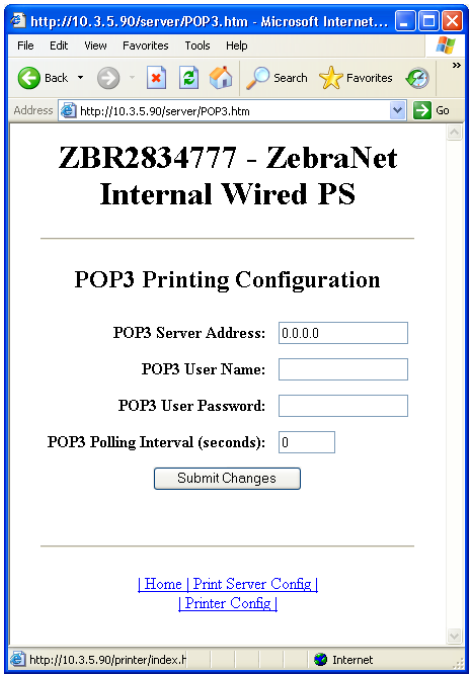
System (SNMP) This feature gives you the ability to manage multiple devices on a network, be it printers, computers, or other network-attached devices. On this page, you can define the SNMP system name, system location (10/100 Internal PS description), and other SNMP settings for your 10/100 Internal PS.	
SMTP Email Alert Configuration This feature allows you to enter data regarding System Information on the network that is being used. Typically, a Network Administrator would use this.	

Table 3 • Menu Options (Continued)

Web Admin This page allows you to configure the Admin name and password. Links to upgrades and support information can also be altered. **Note •** The printer and print server password can be changed on ZPL printers with firmware Vx.15.x or higher.	
POP3 Email Printing This feature helps you set up the print server to receive email messages containing formats that can be printed. The POP3 settings must be set to retrieve emails from the email server. **Important •** Zebra recommends setting the POP3 polling interval no lower than 30. Some email servers will lock accounts after repeated login attempts.	

Print Server Status

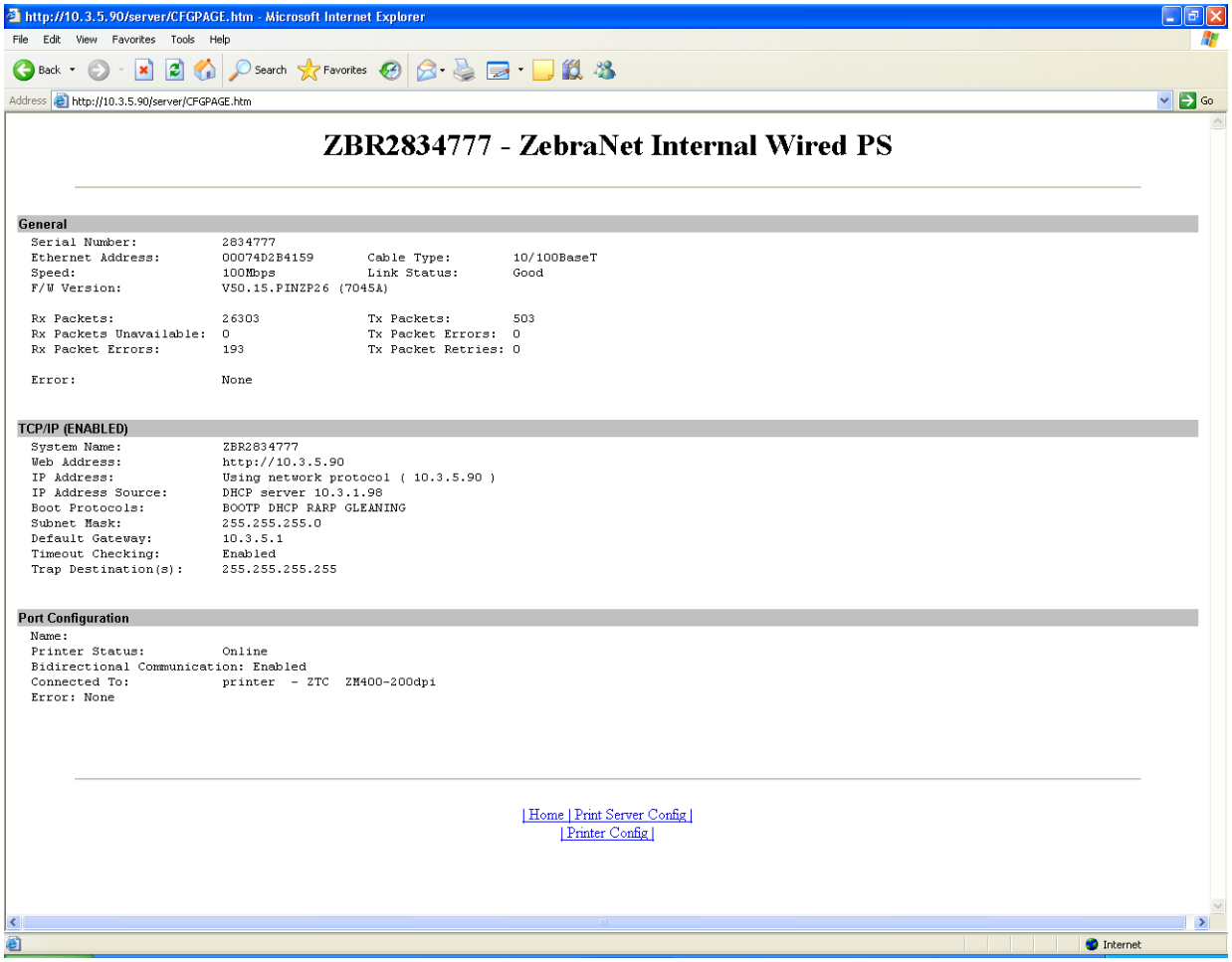
From the Print Server page in the **Print Server Status** section, you can access the 10/100 Internal PS configuration sheet and port status.

To open the 10/100 Internal PS configuration page, complete this step:

1. From the Print Server Settings Page, click View Configuration Sheet.

   The Configuration Sheet opens.

Figure 5 • Configuration Sheet

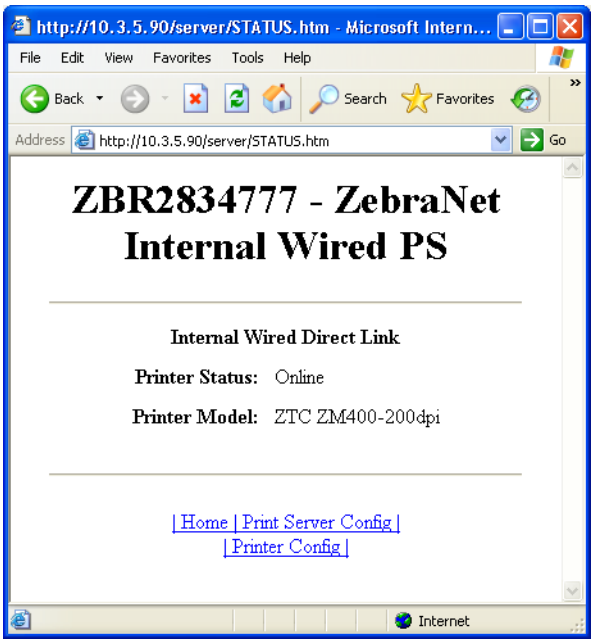

http://10.3.5.90/server/CFGPAGE.htm - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites
Address http://10.3.5.90/server/CFGPAGE.htm
Go
ZBR2834777 - ZebraNet Internal Wired PS
General
Serial Number: 2834777
Ethernet Address: 00074D2B4159 Cable Type: 10/100BaseT
Speed: 100Mbps Link Status: Good
F/W Version: V50.15.P1NZP26 (7045A)
Rx Packets: 26303 Tx Packets: 503
Rx Packets Unavailable: 0 Tx Packet Errors: 0
Rx Packet Errors: 193 Tx Packet Retries: 0
Error: None
TCP/IP (ENABLED)
System Name: ZBR2834777
Web Address: http://10.3.5.90
IP Address: Using network protocol (10.3.5.90)
IP Address Source: DHCP server 10.3.1.98
Boot Protocols: BOOTP DHCP RARP GLEANING
Subnet Mask: 255.255.255.0
Default Gateway: 10.3.5.1
Timeout Checking: Enabled
Trap Destination(s): 255.255.255.255
Port Configuration
Name:
Printer Status: Online
Bidirectional Communication: Enabled
Connected To: printer - ZTC ZM400-200dpi
Error: None
| Home | Print Server Config |
| Printer Config |
Internet

To view the port status, complete this step:

Important • The default user ID and password is required to access this page.

1. From the Print Server page, click View Port Status.
   The Port Status page opens.

Figure 6 • Port Status



Reset

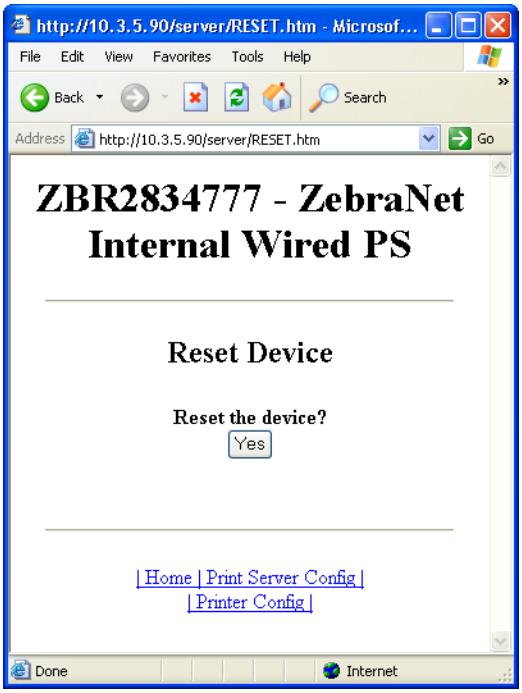
From the Print Server page in the Reset section, you can perform a soft reboot of the print server.

To reset the 10/100 Internal PS, complete these steps:

1. From the Print Server Settings page, click Reset Print Server.

   The Reset Print Server page opens.

Figure 7 • Reset Print Server



2. To reset 10/100 Internal PS, click Yes.

Restore

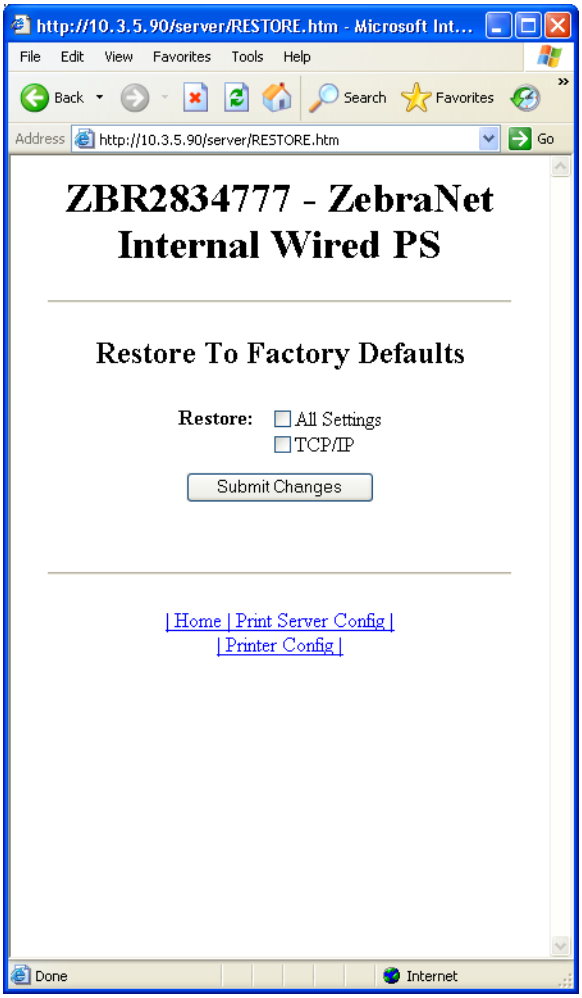
From the Print Server page in the Restore section, you can restore 10/100 Internal PS to the default factory settings:

To restore 10/100 Internal PS to the default factory settings, complete these steps:

1. From the Print Server page, click Factory Print Server Settings.

   The Restore To Factory Defaults page opens.

Figure 8 • Restore to Factory Settings



2. Make the selections you want, and click Submit Changes.

Notes •

3

Getting Started

This chapter provides you with information and procedures for working with the most frequently used 10/100 Internal PS features.

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Before You Begin

10/100 Internal PS offers many features, but how you access and work with them is dependent on your environment. Before you begin, you need to get information from the 10/100 Internal PS configuration label.

Important • Make sure the printer is turned off (**O**).

Table 4 shows the minimum label widths needed to print a 10/100 Internal PS configuration label with different DPI printheads.

Table 4 • Label Width

DPI	Inches	MM
600	1.25	31.75
300	2.50	63.50
200	3.69	93.73

To print a network configuration label for ZM400 and ZM600 printers with a 10/100 Internal PS, complete these steps:

1. Turn on (**I**) the printer and let it complete its power-up cycle.

   When the POST cycle is complete, press Setup/Exit to enter the Setup Mode.

2. Scroll through the parameters using the Plus (+ key) until you reach `List Network`.

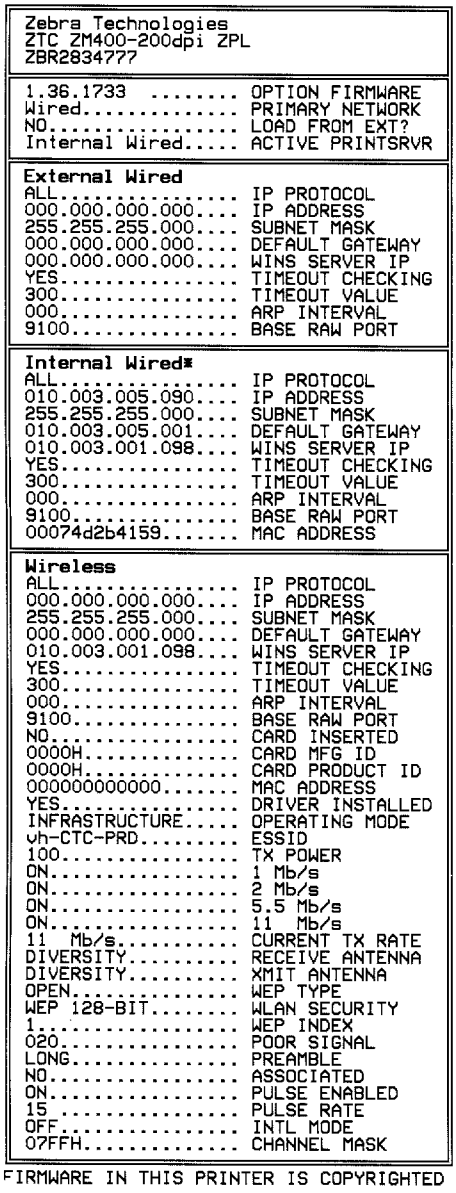
3. Press Plus (+ key) to print the network configuration label.

To print the network and printer configuration labels for GK420 and GX420/430 printers with a 10/100 Internal PS, complete these steps:

1. Turn on (**I**) the printer and let it complete its power-up cycle.

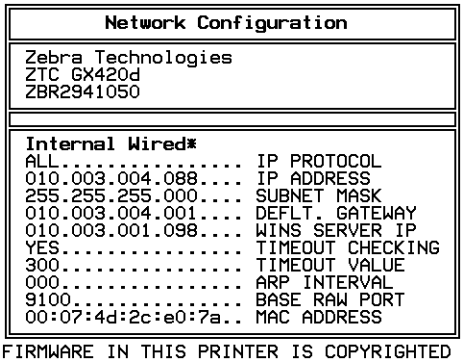
2. Press and hold the Feed button until you see one flash of the LED. After the LED flash, release the button to print the network and printer configuration labels.

Figure 9 • Network Configuration Label for ZM400/ZM600



```
Zebra Technologies
ZTC ZM400-200dpi ZPL
ZBR2834777

1.36.1733  ........ OPTION FIRMWARE
Wired.............. PRIMARY NETWORK
NO................. LOAD FROM EXT?
Internal Wired..... ACTIVE PRINTSRVR

External Wired
ALL................ IP PROTOCOL
000.000.000.000.... IP ADDRESS
255.255.255.000.... SUBNET MASK
000.000.000.000.... DEFAULT GATEWAY
000.000.000.000.... WINS SERVER IP
YES................ TIMEOUT CHECKING
300................ TIMEOUT VALUE
000................ ARP INTERVAL
9100............... BASE RAW PORT

Internal Wired*
ALL................ IP PROTOCOL
010.003.005.090.... IP ADDRESS
255.255.255.000.... SUBNET MASK
010.003.005.001.... DEFAULT GATEWAY
010.003.001.098.... WINS SERVER IP
YES................ TIMEOUT CHECKING
300................ TIMEOUT VALUE
000................ ARP INTERVAL
9100............... BASE RAW PORT
00074d2b4159....... MAC ADDRESS

Wireless
ALL................ IP PROTOCOL
000.000.000.000.... IP ADDRESS
255.255.255.000.... SUBNET MASK
000.000.000.000.... DEFAULT GATEWAY
010.003.001.098.... WINS SERVER IP
YES................ TIMEOUT CHECKING
300................ TIMEOUT VALUE
000................ ARP INTERVAL
9100............... BASE RAW PORT
NO................. CARD INSERTED
0000H.............. CARD MFG ID
0000H.............. CARD PRODUCT ID
000000000000....... MAC ADDRESS
YES................ DRIVER INSTALLED
INFRASTRUCTURE..... OPERATING MODE
yh-CTC-PRD......... ESSID
100................ TX POWER
ON................. 1 Mb/s
ON................. 2 Mb/s
ON................. 5.5 Mb/s
ON................. 11  Mb/s
11  Mb/s........... CURRENT TX RATE
DIVERSITY.......... RECEIVE ANTENNA
DIVERSITY.......... XMIT ANTENNA
OPEN............... WEP TYPE
WEP 128-BIT........ WLAN SECURITY
1.................. WEP INDEX
020................ POOR SIGNAL
LONG............... PREAMBLE
NO................. ASSOCIATED
ON................. PULSE ENABLED
15 ................ PULSE RATE
OFF................ INTL MODE
07FFH.............. CHANNEL MASK
FIRMWARE IN THIS PRINTER IS COPYRIGHTED
```

Figure 10 • Network Configuration Label for G-Series™ Printers



```
Network Configuration

Zebra Technologies
ZTC GX420d
ZBR2941050

Internal Wired*
ALL................ IP PROTOCOL
010.003.004.088.... IP ADDRESS
255.255.255.000.... SUBNET MASK
010.003.004.001.... DEFLT. GATEWAY
010.003.001.098.... WINS SERVER IP
YES................ TIMEOUT CHECKING
300................ TIMEOUT VALUE
000................ ARP INTERVAL
9100............... BASE RAW PORT
00:07:4d:2c:e0:7a.. MAC ADDRESS
FIRMWARE IN THIS PRINTER IS COPYRIGHTED
```

3. Press Setup/Exit to exit the Setup Mode.
4. From the network configuration label, you need to look for these numbers:
   - IP PROTOCOL
   - IP ADDRESS
   - SUBNET MASK
   - DEFAULT GATEWAY
   - MAC ADDRESS
5. On the network configuration label that prints out for your 10/100 Internal PS device, circle the aforementioned settings. You can now proceed to *Assigning an IP Address* on page 43.

Using the Control Panel to View and Modify Print Server Parameters

You may change several print server parameters using the control panel on the printer. Table 5 shows the parameters that may be viewed or modified through the printer's control panel for ZM400 and ZM600 printers with firmware version V53.15.x or later.

Table 5 • Print Server Parameters

Parameter	Function
LIST NETWORK	**Print a Network Configuration Label** Use this parameter to print a network configuration label (see Figure 9 on page 37).
IP PROTOCOL[1]	**View the Method to Obtain an IP Address** This parameter tells if the user (permanent) or the server (dynamic) selects the IP address. If a dynamic option is chosen, this parameter tells the method(s) by which the print server (wired or wireless) receives the IP address from the server. *Selections:* ALL, BOOTP, DHCP, DHCP AND BOOTP, PERMANENT *Default Value:* All
IP ADDRESS[1]	**View the Print Engine's IP Address** *Default Value:* 0.0.0.0
SUBNET MASK[1]	**View the Subnet** *Default Value:* 255.255.255.0
DEFAULT GATEWAY[1]	**View the Gateway** *Default Value:* 0.0.0.0
RESET NETWORK[1]	**Reset the Wired or Wireless Network** Use this parameter to reinitialize the wireless radio card and the print server (wired or wireless) when the wireless print server is running. This parameter also causes any wireless radio card in the printer to reassociate to the wireless network.
ACTIVE PRINTSRVR	**View the Active Print Server** *Selections:* Wired, Wireless *Default Value:* Wired
PRIMARY NETWORK	**View the Primary Network** *Default Value:* Internal Wired

1 These parameters appear after the system recognizes the existence of a ZebraNet print server (wired or wireless). After the print server is recognized, all zeroes (000.000.000.000) will display until the printer obtains an IP address or defaults to address 192.168.254.254.

Defaulting the 10/100 Internal PS

This section provides you with instructions for defaulting the 10/100 Internal PS to factory settings using the control panel, WebView, and ZebraNet View.

Defaulting the 10/100 PS on the ZM400 and ZM600 Printers

To default the 10/100 Internal PS to factory settings using the control panel on the ZM400 or ZM600 printers, complete these steps:

1. From the control panel, press Setup/Exit two times.
2. Press Plus (+ key) five times.

   The control panel will read **DEFAULT NET**.
3. Press Setup/Exit to save the change.
4. After the printer defaults all settings, the control panel will show **PRINTER READY**.

Defaulting the 10/100 PS and the GK420 and GX420/430 Printers

To default the 10/100 Internal PS and the printer to factory settings, complete these steps:

1. Turn on (**I**) the printer and let it complete its power-up cycle.
2. Press and hold the Feed button until you see four flashes of the LED. After the fourth LED flash, release the button to default the print server and the printer to factory settings.

WebView

To default the 10/100 Internal PS to factory settings using WebView, complete these steps:

1. From the ZebraNet PrintServer view, click Factory Print Server Settings.

   The Restore to Factory Defaults page opens:

Figure 11 • Restore to Factory Defaults

2. Enable the check box for the settings you want to reset, and click Submit Changes.

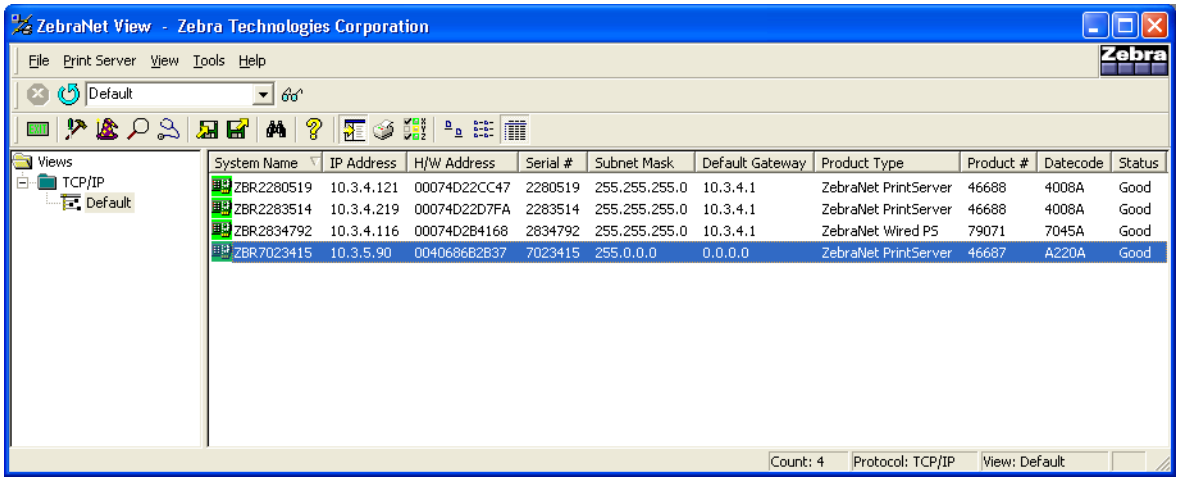
Important • During the reset cycle, the web pages are unavailable. Upon completion, check the IP address of the 10/100 Internal PS as it may have changed during the reset cycle.

ZebraNet View

To default 10/100 Internal PS to factory settings using ZebraNet View, complete these steps:

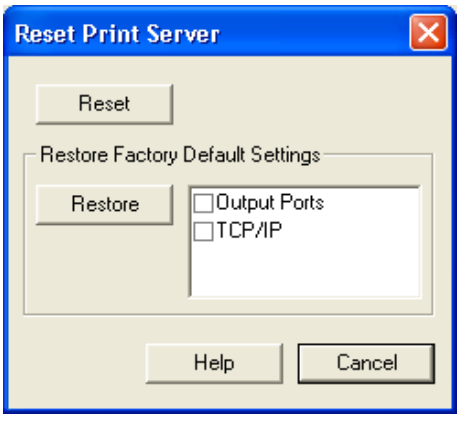
1. From the task bar, select Start > Programs > ZebraNet Utilities > ZebraNet View.
   The ZebraNet View dialog opens:

Figure 12 • ZebraNet View


ZebraNet View - Zebra Technologies Corporation
File Print Server View Tools Help
Zebra
Default
Views
TCP/IP
Default
System Name IP Address H/W Address Serial # Subnet Mask Default Gateway Product Type Product # Datecode Status
ZBR2280519 10.3.4.121 00074D22CC47 2280519 255.255.255.0 10.3.4.1 ZebraNet PrintServer 46688 4008A Good
ZBR2283514 10.3.4.219 00074D22D7FA 2283514 255.255.255.0 10.3.4.1 ZebraNet PrintServer 46688 4008A Good
ZBR2834792 10.3.4.116 00074D2B4168 2834792 255.255.255.0 10.3.4.1 ZebraNet Wired PS 79071 7045A Good
ZBR7023415 10.3.5.90 0040686B2B37 7023415 255.0.0.0 0.0.0.0 ZebraNet PrintServer 46687 A220A Good
Count: 4
Protocol: TCP/IP
View: Default

2. From the menu bar, select Print Server > Reset.
   The Reset Print Server dialog opens:

Figure 13 • Reset Print Server



3. Select the settings you want to reset, then click Restore.

Assigning an IP Address

Before you can begin working with 10/100 Internal PS, you must get or assign an IP address for the 10/100 Internal PS device.

There are four different ways to assign an IP address. Here is a list and a brief description of each method:

- Web View — Browser-enabled method to assign an IP address.
- ZebraNet View — Utility that remotely manages ZebraLink-enabled printers.
- DHCP — See your LAN administrator for more information.
- Telnet — DOS command to assign an IP address.

Important • Throughout the procedures in this chapter, there are some features that require the default User ID and/or default password. If you are prompted, these are the defaults:

- **User ID**: `admin`
- **Password**: `1234`

With Dynamic Host Configuration Protocol (DHCP)

If your network uses DHCP, your 10/100 Internal PS device is assigned a temporary IP address.

Note • Check with your Network Administrator to see whether your network uses DHCP.

Without DHCP

If your network does not use a dynamic IP addressing system (such as DHCP), you need to set a permanent IP address for the 10/100 Internal PS device. ZebraNet View is the Windows-based print server management and configuration utility that comes with your 10/100 Internal PS.

Important • The remaining sections are dependent on the successful installation of ZebraNet Utilities. To install, see *ZebraNet Utilities* on page 50.

Assigning an IP Address with DHCP

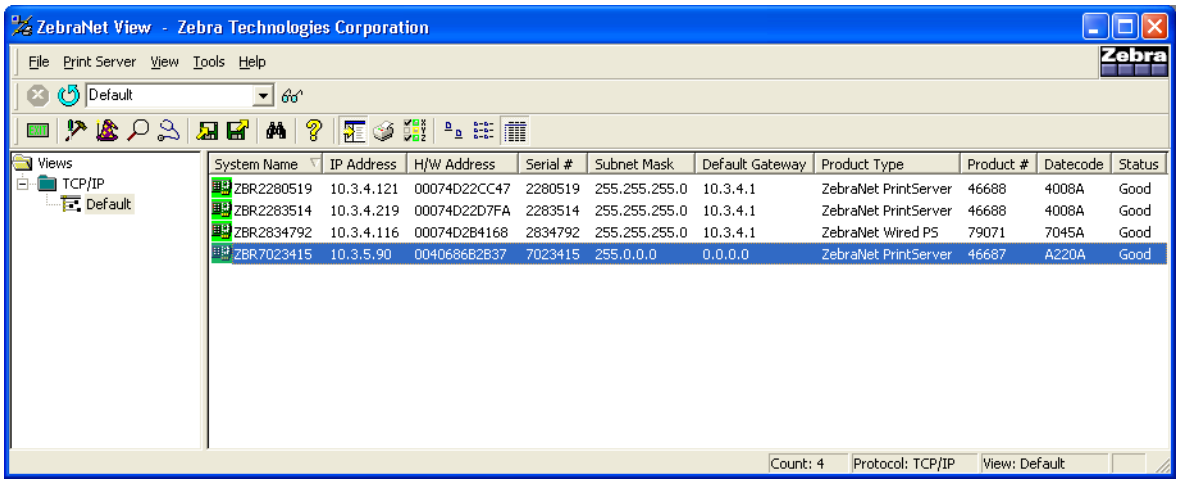
To assign an IP address using ZebraNet View, complete these steps:

1. From the task bar, select Start > Programs > ZebraNet Utilities > ZebraNet View.

Important • On the illustration that follows, take note of the `H/W address` column and `Serial #` column. Compare what you see in ZebraNet View with the network configuration label you printed out.

The ZebraNet View dialog opens:

Figure 14 • ZebraNet View


ZebraNet View - Zebra Technologies Corporation
File Print Server View Tools Help
Default
Views
TCP/IP
Default
System Name IP Address H/W Address Serial # Subnet Mask Default Gateway Product Type Product # Datecode Status
ZBR2280519 10.3.4.121 00074D22CC47 2280519 255.255.255.0 10.3.4.1 ZebraNet PrintServer 46688 4008A Good
ZBR2283514 10.3.4.219 00074D22D7FA 2283514 255.255.255.0 10.3.4.1 ZebraNet PrintServer 46688 4008A Good
ZBR2834792 10.3.4.116 00074D2B4168 2834792 255.255.255.0 10.3.4.1 ZebraNet Wired PS 79071 7045A Good
ZBR7023415 10.3.5.90 0040686B2B37 7023415 255.0.0.0 0.0.0.0 ZebraNet PrintServer 46687 A220A Good
Count: 4
Protocol: TCP/IP
View: Default

2. Compare the `MAC Address` on the 10/100 Internal PS network configuration label with the `H/W Address` column on the screen to find the 10/100 Internal PS you are working with.

3. When you locate your 10/100 Internal PS, select it.

4. From the menu bar, select PrintServer > Configuration.

Important • If the 10/100 Internal PS does not have an IP address, it shows in the main screen with an IP of **0.0.0.0**. If, after 2 minutes, you do not assign an IP Address, the 10/100 Internal PS defaults to IP Address **192.168.254.254**.

5. If your 10/100 Internal PS does not have an IP address, complete these steps:
   - Find your 10/100 Internal PS and right-click.
   - In the small dialog that opens, enter an IP Address, click OK.
   - The ZebraNet View dialog opens.

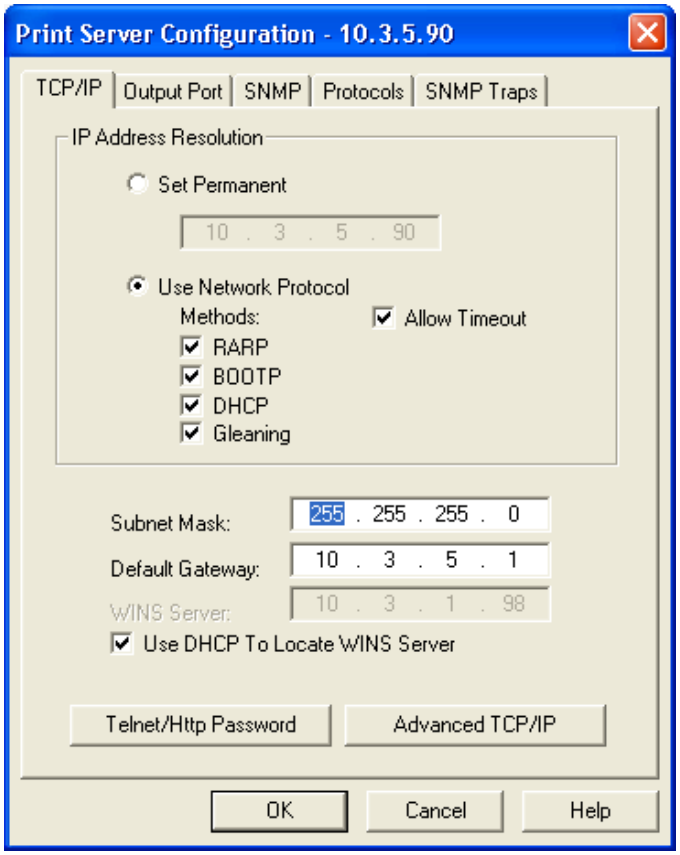
Setting the Subnet

To set the subnet, complete these steps:

1. From the ZebraNet View menu bar, select PrintServer > Configuration.
2. Click the TCP/IP tab.
3. From the Print Server Configuration > TCP/IP tab, in the Subnet Mask text-box, type in your subnet mask.
4. Confirm it is accurate, and click OK.

   The Print Server Configuration dialog opens.

Figure 15 • Printer Server Configuration



5. To set a permanent IP address, enable the **Set Permanent** option button.
6. In the **Set Permanent** text box, type a new IP address, and then click OK.

Setting the Default Gateway

These steps are optional.

To set the default gateway, complete these steps:

1. From the ZebraNet View menu bar, select PrintServer > Configuration.
2. Click the TCP/IP tab.
3. From the Print Server Configuration > TCP/IP tab, in the Default Gateway text-box, type in your default gateway.
4. Confirm it is accurate, and click OK.

In a Non-Windows Environment

These steps can be used to assign an IP address using the control panel (LCD).

Assigning an IP address from the printer LCD

To assign an IP address from the printer LCD, complete these steps:

1. Turn on (I) the printer and wait until the LCD says **PRINTER READY**. If you do not have a network cable in the port, the 10/100 Internal PS prints the configuration label when it is ready.
2. On the printer control panel, press SETUP/EXIT.
3. On the printer control panel, press PREVIOUS until you reach the **NETWORK SETTINGS** menu item.
4. You can edit any of the following network settings in order to communicate with any 10/100 Internal PS in your network environment.

Important • To change any of these settings, you need to enter the printer password. The default password is 1234.

- **ip resolution** (dynamic, permanent): The printer menu item **IP RESOLUTION** must be set to **PERMANENT** if attempting to assign the IP address from the control panel.
- **default gateway** (default setting of 000.000.000.000)
- **subnet mask** (default setting 255.255.255.0)
- **ip address** (if initial default setting is 0.0.0.0, after 2 minutes this defaults to **192.168.254.254**)
- **ip protocol** (gleaning only, RARP, BOOTP, DHCP, DHCP and BOOTP, all)

Assigning an IP Address via a Telnet Session

If your environment is not Windows-based, this section is for you. However, this method can be used in a Windows environment, too.

The methods used for assigning an IP address with a Telnet session are **Static Route** and **Gleaning**.

Important • This applies to any TCP/IP-capable workstation/host networked with the Zebra printer. Both, the workstation/host and the 10/100 Internal PS, must be on the same network segment.

Before you can Telnet to the 10/100 Internal PS and configure it, you must first assign the 10/100 Internal PS a temporary IP address.

Static Route

To use this method, complete these steps:

1. Turn on (I) the printer and wait for 2 minutes to allow for the device to complete the self-test.

   During this time, the 10/100 Internal PS performs an address broadcast. If no address is assigned to the unit (via DHCP or Bootp), it uses a default address. The default address for 10/100 Internal PS is **`192.168.254.254`**. Print the 10/100 Internal PS configuration label to confirm the address. For details, see *Before You Begin* on page 36.

2. You can use the `route add` command to place the default IP address into the workstation's network routing table.

   Example • In the next step, **** is the IP address on the 10/100 Internal PS configuration label.

3. At the workstation/host command prompt (in Windows, at the DOS prompt), type:

   ```
   route add **** "IP address of the workstation" 0
   ```

   Note • The zero (0) placed at the end of the "`route add`" command is optional on some systems.

4. Telnet to the 10/100 Internal PS by typing:

   ```
   "Telnet xxx.xxx.xxx.xxx"
   ```

   The password is `1234`.

5. At this point, you can alter the settings as desired. When complete, do a reset and allow the 10/100 Internal PS self-test to complete before proceeding with any communications activity.

Gleaning

A method by which the 10/100 Internal PS uses the IP address of the first ping packet that is sent to its hardware address.

Note • Gleaning works **only** on local subnets at routers. It does not pass Address Resolution Protocol (ARP) broadcasts.

To use this method, complete these steps:

1. Add an entry to the ARP table that assigns an IP address to an Ethernet (hardware) address.

   The syntax for this command is:

   ```
   arp -s "temporary ipaddress of print server" "MAC Address
   (print server hardware address)" arp -s <temporary ip
   address> <MAC Address>
   ```

   Example • You would type:

   ```
   arp -s 10.3.50.59 00-07-4d-68-1D-B9-86
   ```

2. Power cycle the printer.
3. As the printer reboots, begin a continuous ping to the address assigned previously.

   Note • Most UNIX systems use a continuous ping.

   To use a continuous ping from a Windows host, you must issue the command: `ping -t "ipaddress"`.

4. When the 10/100 Internal PS begins to respond, stop the ping activity.

   In Windows, Ctrl + C halts the pinging.

5. Telnet to the 10/100 Internal PS and assign the appropriate IP address, subnet mask, and gateway, if applicable.
6. Once this is complete, reset the 10/100 Internal PS.

   For details on resetting the 10/100 Internal PS, see *Reset* on page 32.

4

Installation

This chapter provides information on the 10/100 Internal PS, and how to install ZebraNet Utilities and the ZebraNet View Java Applet.

Contents

10/100 Internal PS 50
ZebraNet Utilities 50
ZebraNet View Java Applet 54

10/100 Internal PS

To install an 10/100 Internal PS, see the installation instructions on the Connectivity Solutions CD.

ZebraNet Utilities

The ZebraNet Utilities is a software suite consisting of tools to assist you with the configuration of the 10/100 Internal PS device, which gives you the flexibility to make changes to settings, track errors, and more.

If you want to be certain you have the most recent version of the ZebraNet Utilities, you can visit our Web site and download the most recent version at:

www.zebra.com/utilities

For more details, see *Overview* on page 14 or *ZebraNet Utilities* on page 97.

Note • Contact your System Administrator before installing this software. You must have Administrator rights on your network to install most of these utilities.

To install the ZebraNet Utilities, complete these steps:

The steps that follow reflect the steps and dialogs for a typical installation. If you plan to conduct a custom installation, the dialogs you encounter or see will differ from those in these steps.

1. Insert the CD-ROM into the drive.

Important • Is AutoPlay enabled on your computer?

- **Yes**. Your computer automatically launches the installation.
- **No**. You need to navigate to:

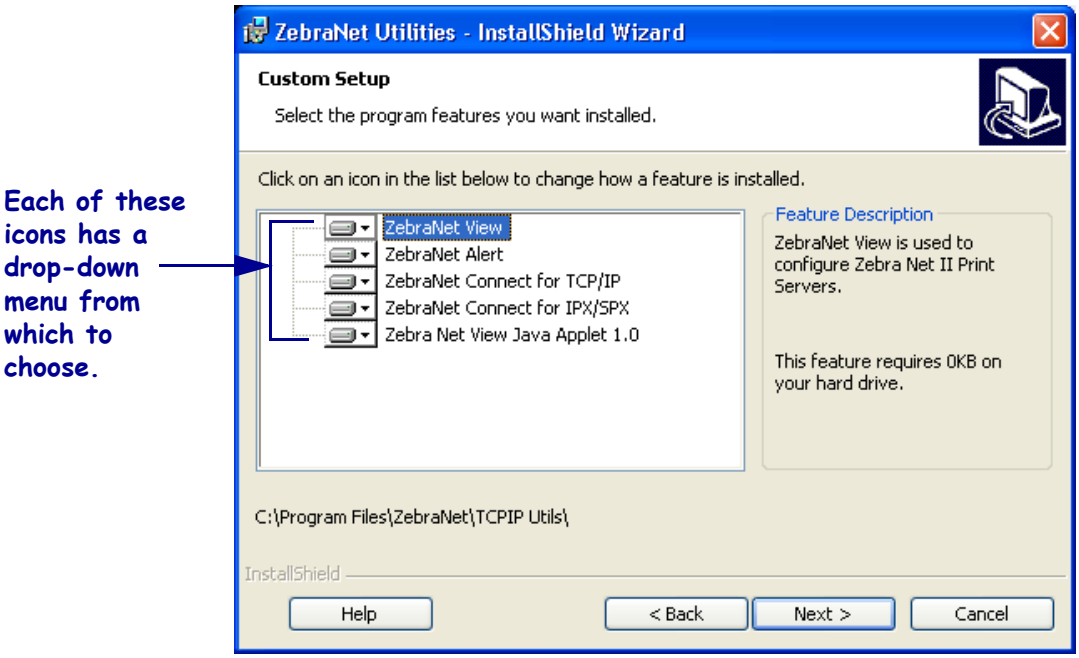
`Software > ZebraNet Util > setup.exe`

on the CD-ROM and manually launch the installation.

2. Click Next.

   Figure 16 shows the dialog box where you select the utilities that you want to install.

Figure 16 • ZebraNet Install Utilities

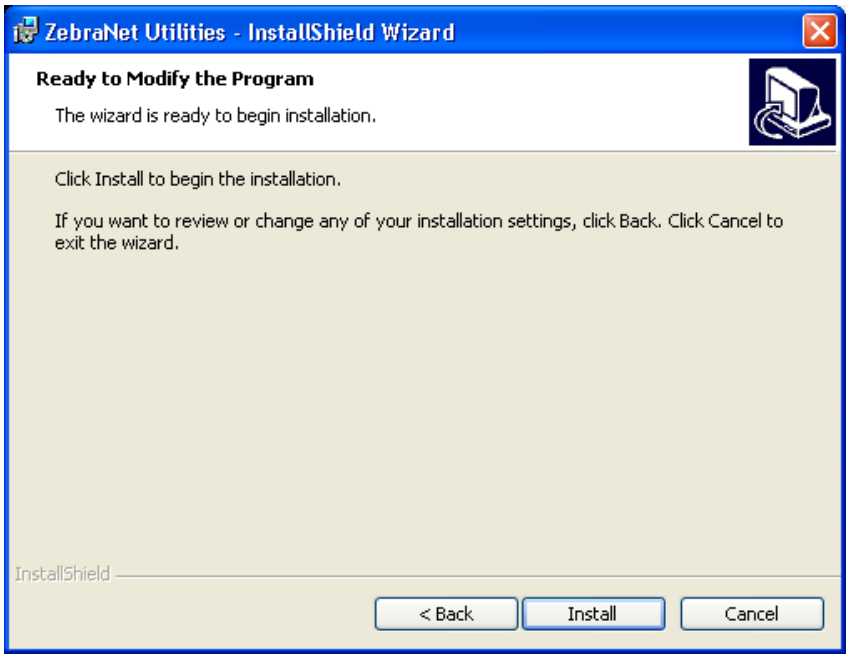

Each of these icons has a drop-down menu from which to choose.
ZebraNet Utilities - InstallShield Wizard
Custom Setup
Select the program features you want installed.
Click on an icon in the list below to change how a feature is installed.
ZebraNet View
ZebraNet Alert
ZebraNet Connect for TCP/IP
ZebraNet Connect for IPX/SPX
Zebra Net View Java Applet 1.0
Feature Description
ZebraNet View is used to configure Zebra Net II Print Servers.
This feature requires 0KB on your hard drive.
C:\Program Files\ZebraNet\TCPIP Utils\
InstallShield
Help
< Back
Next >
Cancel

Important • If you choose to install the ZebraNet View Java Applet in step 3, you must complete the installation steps for *ZebraNet View Java Applet* on page 54.

3. In the ZebraNet Utilities dialog, select the features you want to install and click Next.

   The ZebraNet Setup Dialog gives you the chance to reset your installation settings.

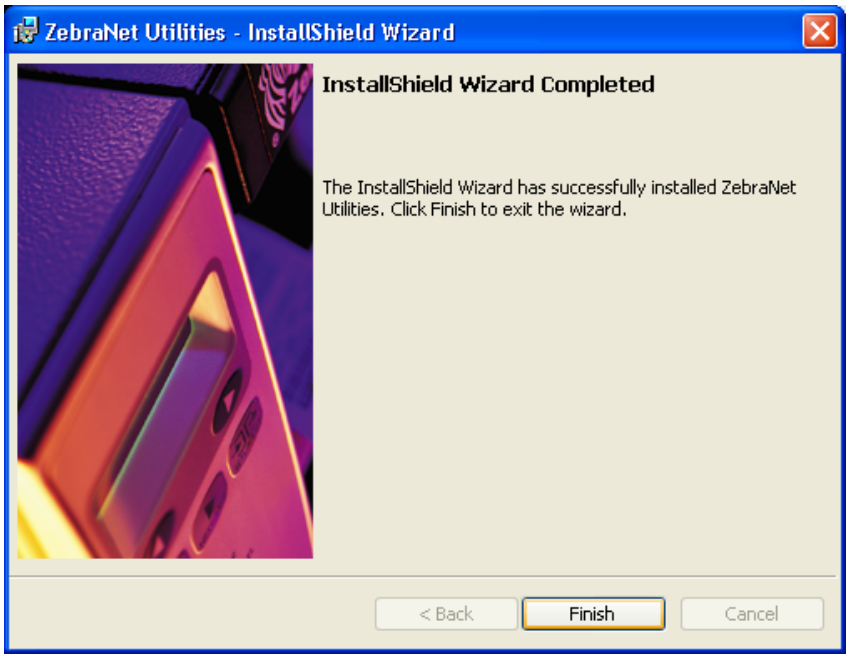
Figure 17 • ZebraNet Setup Dialog


ZebraNet Utilities - InstallShield Wizard
Ready to Modify the Program
The wizard is ready to begin installation.
Click Install to begin the installation.
If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.
InstallShield
< Back
Install
Cancel

4. In the ZebraNet Utilities dialog, you have the option to review and make any changes to your installation settings. When you are satisfied with your installation settings, click Install.

   When the installation is complete, this dialog opens.

Figure 18 • ZebraNet Setup Dialog


ZebraNet Utilities - InstallShield Wizard
InstallShield Wizard Completed
The InstallShield Wizard has successfully installed ZebraNet Utilities. Click Finish to exit the wizard.
< Back
Finish
Cancel

5. Click Finish.

Important • When the installation is complete, you need to restart your system for the changes to take effect.

ZebraNet View Java Applet

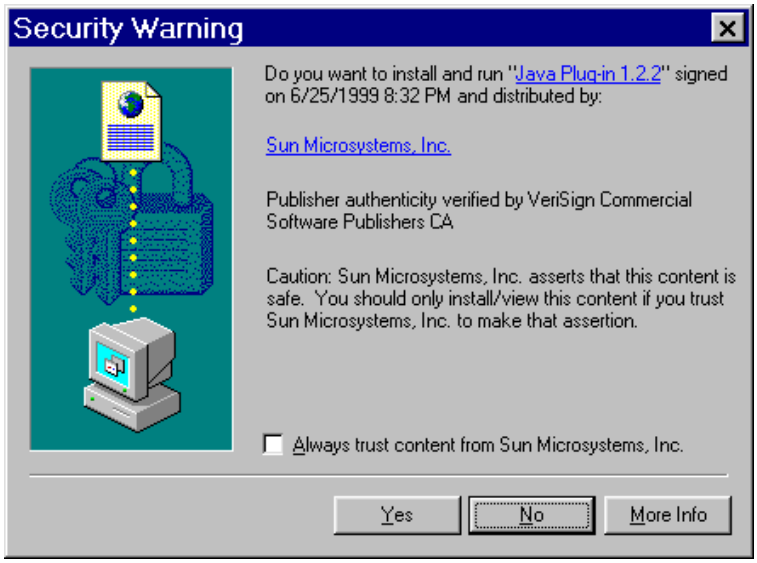
If you selected ZebraNet View Java Applet when you were installing the ZebraNet Utilities, you need to complete a few installation steps to work with this utility.

To install ZebraNet View Java Applet, complete these steps:

1. From the task bar, select Programs > ZebraNet Utilities > ZebraNet View Java Applet 1.0.

   This Security Warning dialog opens.

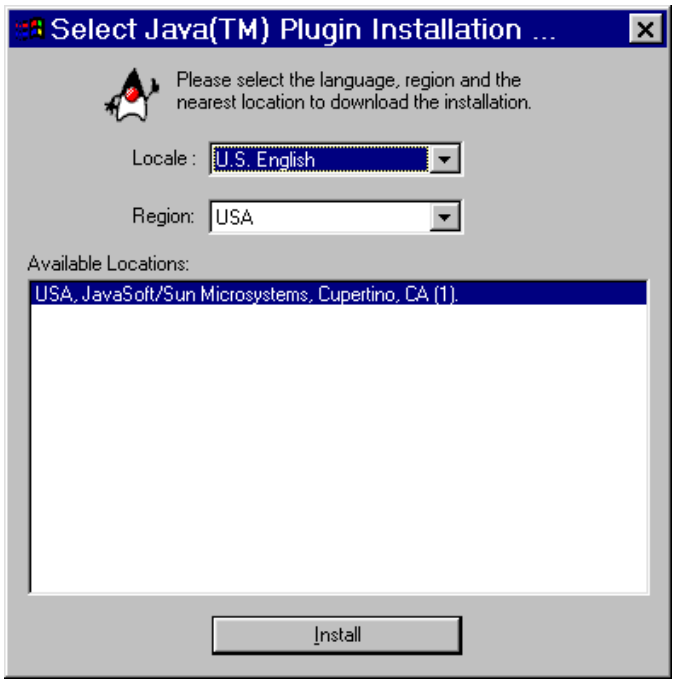
Figure 19 • ZebraNet Security Warning


Security Warning
Do you want to install and run "Java Plug-in 1.2.2" signed on 6/25/1999 8:32 PM and distributed by:
Sun Microsystems, Inc.
Publisher authenticity verified by VeriSign Commercial Software Publishers CA
Caution: Sun Microsystems, Inc. asserts that this content is safe. You should only install/view this content if you trust Sun Microsystems, Inc. to make that assertion.
Always trust content from Sun Microsystems, Inc.
Yes
No
More Info

2. To begin the installation, click Yes.

The Select Java Plugin Installation dialog opens.

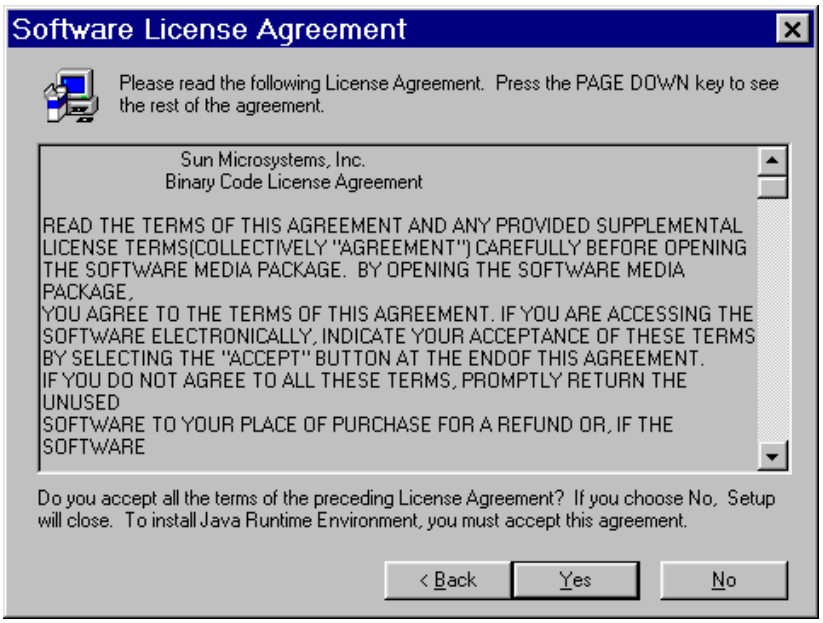
Figure 20 • Select Java Plugin Installation



3. Make the selections that apply to your environment, and click Install.

The Software License Agreement opens.

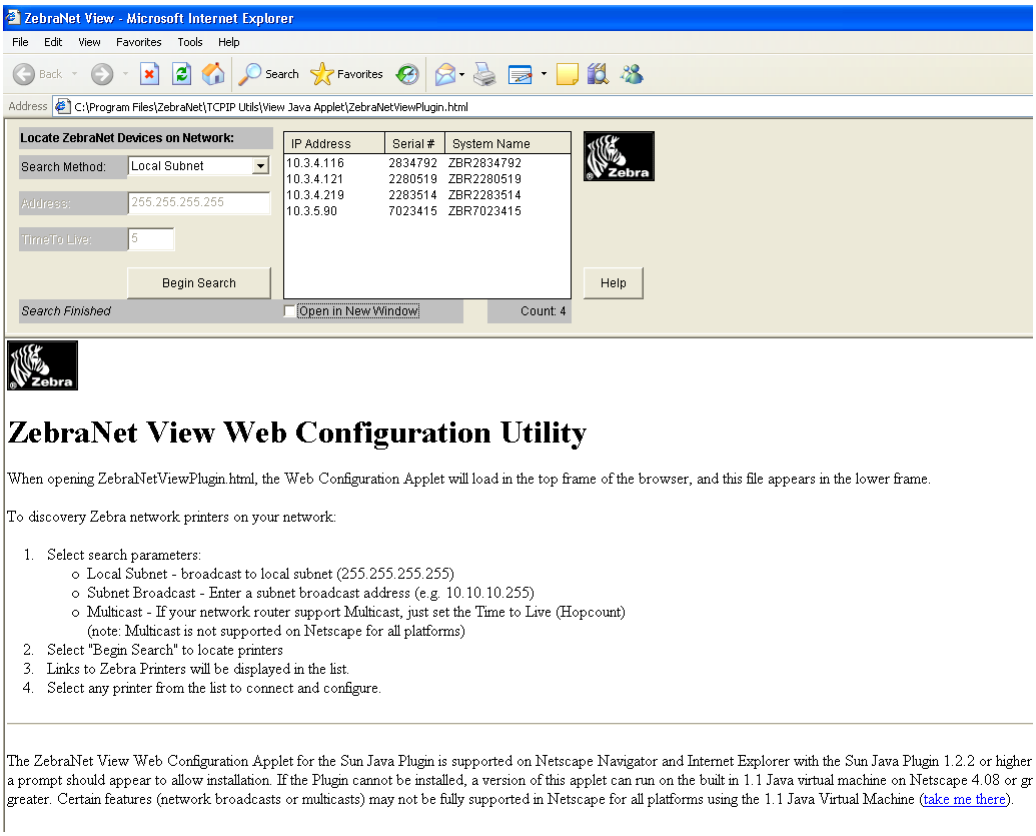
Figure 21 • Software License Agreement


Software License Agreement
Please read the following License Agreement. Press the PAGE DOWN key to see the rest of the agreement.
Sun Microsystems, Inc.
Binary Code License Agreement
READ THE TERMS OF THIS AGREEMENT AND ANY PROVIDED SUPPLEMENTAL LICENSE TERMS(COLLECTIVELY "AGREEMENT") CAREFULLY BEFORE OPENING THE SOFTWARE MEDIA PACKAGE. BY OPENING THE SOFTWARE MEDIA PACKAGE,
YOU AGREE TO THE TERMS OF THIS AGREEMENT. IF YOU ARE ACCESSING THE SOFTWARE ELECTRONICALLY, INDICATE YOUR ACCEPTANCE OF THESE TERMS BY SELECTING THE "ACCEPT" BUTTON AT THE ENDOF THIS AGREEMENT.
IF YOU DO NOT AGREE TO ALL THESE TERMS, PROMPTLY RETURN THE UNUSED
SOFTWARE TO YOUR PLACE OF PURCHASE FOR A REFUND OR, IF THE SOFTWARE
Do you accept all the terms of the preceding License Agreement? If you choose No, Setup will close. To install Java Runtime Environment, you must accept this agreement.
< Back
Yes
No

4. Read the License Agreement.
5. To continue with the installation, click Yes.
6. When the installation is complete, click OK.

   The Java page opens.

Figure 22 • Java Page


ZebraNet View - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Address C:\Program Files\ZebraNet\TCPIP Utils\View Java Applet\ZebraNetViewPlugin.html
Locate ZebraNet Devices on Network:
Search Method: Local Subnet
Address: 255.255.255.255
TimeTo Live: 5
Begin Search
Search Finished
Open in New Window
Count: 4
IP Address Serial # System Name
10.3.4.116 2834792 ZBR2834792
10.3.4.121 2280519 ZBR2280519
10.3.4.219 2283514 ZBR2283514
10.3.5.90 7023415 ZBR7023415
Help
ZebraNet View Web Configuration Utility
When opening ZebraNetViewPlugin.html, the Web Configuration Applet will load in the top frame of the browser, and this file appears in the lower frame.
To discovery Zebra network printers on your network:
1. Select search parameters:
o Local Subnet - broadcast to local subnet (255.255.255.255)
o Subnet Broadcast - Enter a subnet broadcast address (e.g. 10.10.10.255)
o Multicast - If your network router support Multicast, just set the Time to Live (Hopcount)
(note: Multicast is not supported on Netscape for all platforms)
2. Select "Begin Search" to locate printers
3. Links to Zebra Printers will be displayed in the list.
4. Select any printer from the list to connect and configure.
The ZebraNet View Web Configuration Applet for the Sun Java Plugin is supported on Netscape Navigator and Internet Explorer with the Sun Java Plugin 1.2.2 or higher a prompt should appear to allow installation. If the Plugin cannot be installed, a version of this applet can run on the built in 1.1 Java virtual machine on Netscape 4.08 or gr greater. Certain features (network broadcasts or multicasts) may not be fully supported in Netscape for all platforms using the 1.1 Java Virtual Machine (take me there).

7. You have these options:
   - To work with this utility, see *ZebraNet View Java Applet* on page 108.
   - To close the utility, click the **X**.

A

ZebraLink WebView

The appendix provides you with detailed information that allows you to use the enhanced functionality of your ZebraLink-enabled printer with the 10/100 Internal PS.

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WebView

WebView provides the System Administrator or user complete, easy, one-step control over the printing environment. It provides real-time configuration, control, and monitoring capabilities with the convenient graphic interface of a Web browser.

The Web pages returned by Zebra printers are not static. They contain real-time information about the printer's present state of operation, including on-line status, error conditions, and all printing parameters.

Home Page

Note • To access the printer's Web page, you need the IP address. For instructions on getting the IP address, see *Assigning an IP Address* on page 43.

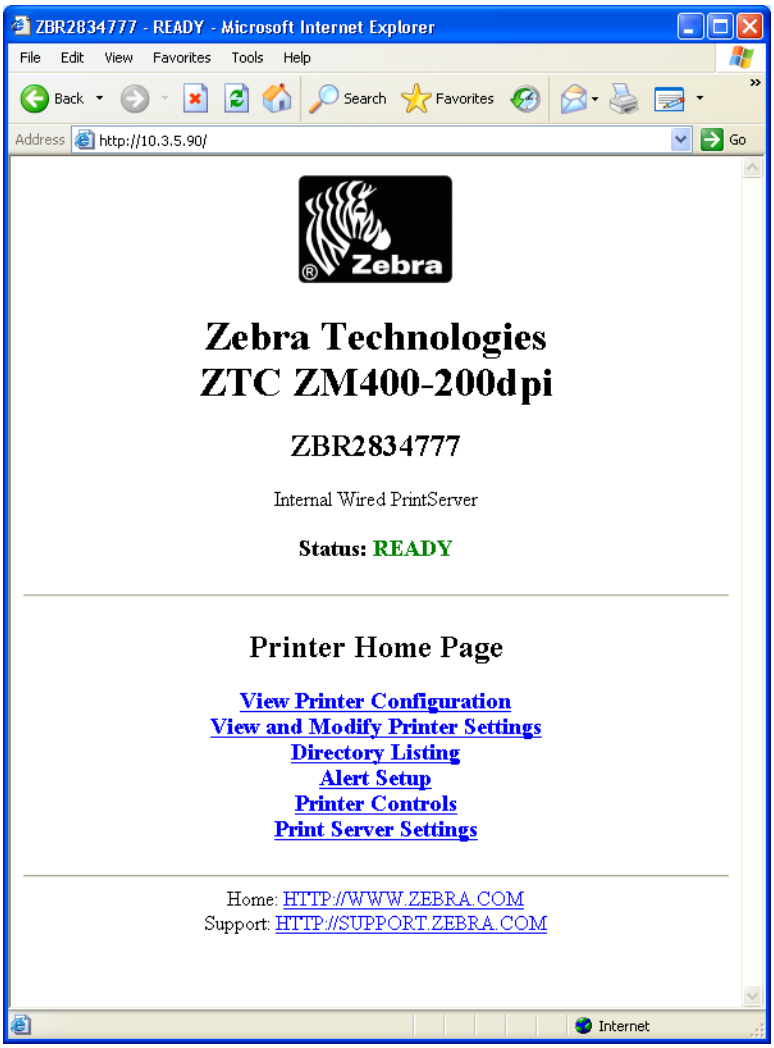
The Home Page is the first Web page that opens. It is a page with a menu of hyperlinks. Each hyperlink allows you to make modifications to the printer, 10/100 Internal PS, and network settings. The other changeable settings on the Home Page include:

- Network Status, Error, and Warning reports
- ZebraNet 10/100 Internal PS configuration
- Printer settings
- Directories of objects stored in Flash memory and RAM devices
- Objects, stored fonts, images, programs, and ZPL II formats
- Zebra Technologies support and home pages

To open WebView for your printer, complete these steps:

1. Open a Web browser.
2. In the Address text-box, type your printer's IP address, and press Enter.
   The Printer Home Page opens.

Figure 23 • Printer Home Page



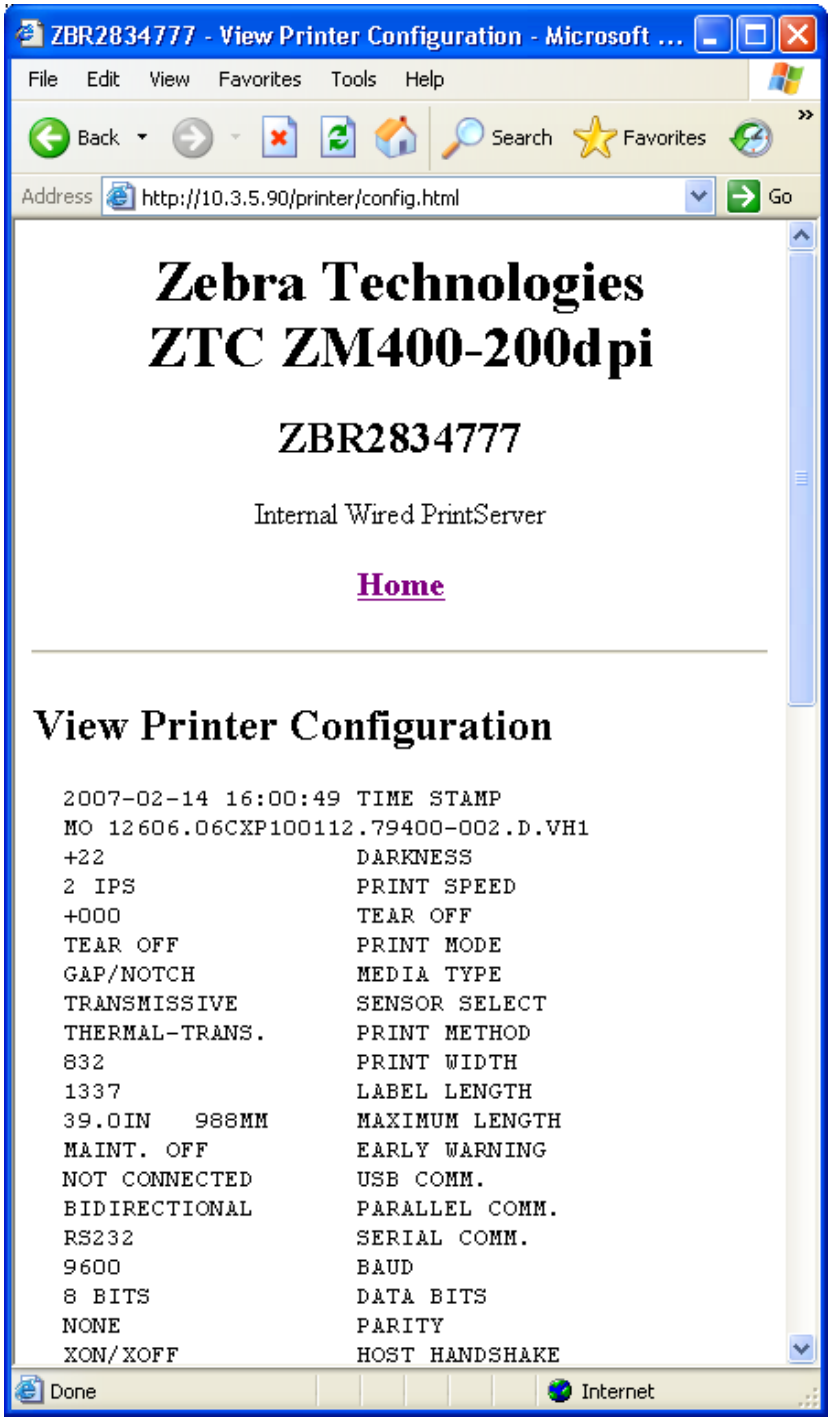
View Printer Configuration

The View Printer Configuration menu option provides accurate, up-to-the-minute information on the printer's current state. An administrator can conveniently find any information on the virtual configuration label and also check on the status of printer ports.

To see the View Printer Configuration menu option, complete these steps:

1. From the Printer Home Page, click View Printer Configuration.
   The WebView displays the configuration settings.

Figure 24 • Configuration Settings



2. To update the printer information from this view, click Refresh and the printer sends current information to the Web browser.

3. When you are finished reviewing:

If...	Then...
You want to return to the Home page	Click the Home link.
You want to print a label	Scroll to the bottom of this page and click Print Label.

Print Server Settings

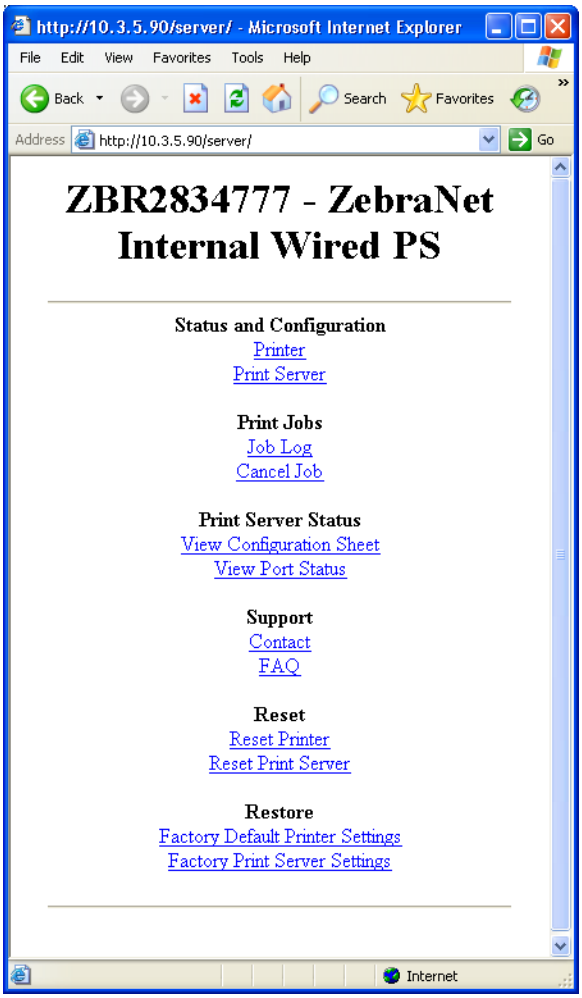
This section provides you with instructions for viewing the current printer settings.

To view the print server menu, complete this step:

- From the Printer Home Page, click Print Server Settings.

  The Print Server Settings Page opens.

Figure 25 • Print Server Settings Page



View and Modify Printer Settings

This section provides you with steps for accessing and modifying printer settings with a ZebraLink-enabled printer. It also provides illustrations of the various pages you can access.

Important • To apply changes made in this section, you need to use the default password for your printer:

Password: 1234

To view and modify printer settings, complete these steps:

1. From the Printer Home Page, click View and Modify Printer Settings.
   The View and Modify Printer Settings page opens.

Figure 26 • View and Modify Printer Settings

2. On the View and Modify Printer Settings page, you have a menu to choose from. Table 6 identifies each menu option page.

Table 6 • Menu Options

General Setup	
Serial Communications Setup	

Table 6 • Menu Options (Continued)

Network Configuration For the G-Series printers, only the following links appear: • SNMP • SMTP • TCP/IP Settings	
Print Listings on Label	

Table 6 • Menu Options (Continued)

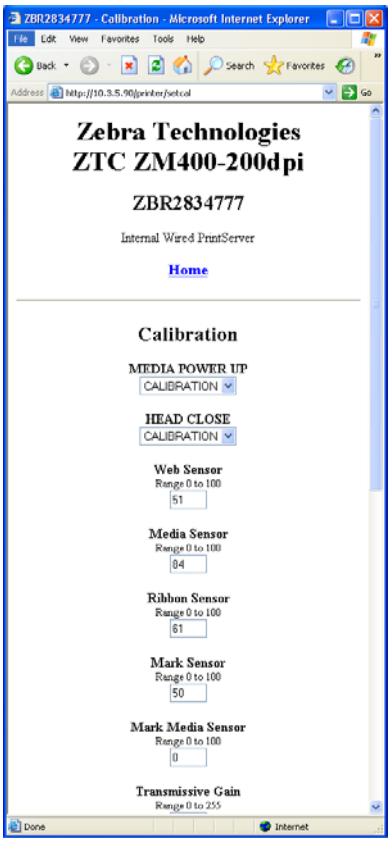
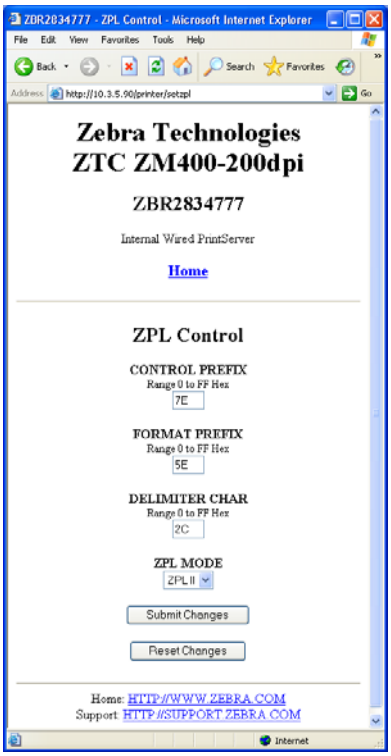
Media Setup	
Calibration	

Table 6 • Menu Options (Continued)

ZPL Control	
Advanced Setup	

Setting the Primary Network Print Server

The ZM400 and ZM600 printers support the simultaneous installation of an internal, external, and a wireless print server. Even though all three print servers may be installed, only one is connected to the network and is the active print server. Table 7 outlines priorities and identifies which device becomes the active print server when multiple print servers are installed.

Table 7 • Primary Print Server

If the Primary Network is set to:	Installed and Connected to a Live Ethernet Network			Then, the Active Print Server will be:
	Internal	External	Wireless*	
Wired	X	X	X	Internal
		X	X	External
			X	Wireless
Wireless	X	X	X	Wireless
	X	X		Internal
		X		External

*NOTE: A Wireless Option board must have an active radio that can properly associate to an access point.

This section provides you with steps for changing the primary network.

To change the primary network, complete these steps:

1. From the Printer Home Page, click View and Modify Printer Settings.
   The View and Modify Printer Settings page opens.

Figure 27 • View and Modify Printer Settings

2. When prompted, enter the printer's password.

Important • To apply changes made in this section, you need to use the default password for your printer:

Password: 1234

3. Click Network Configuration.

   The Network Configuration page opens.

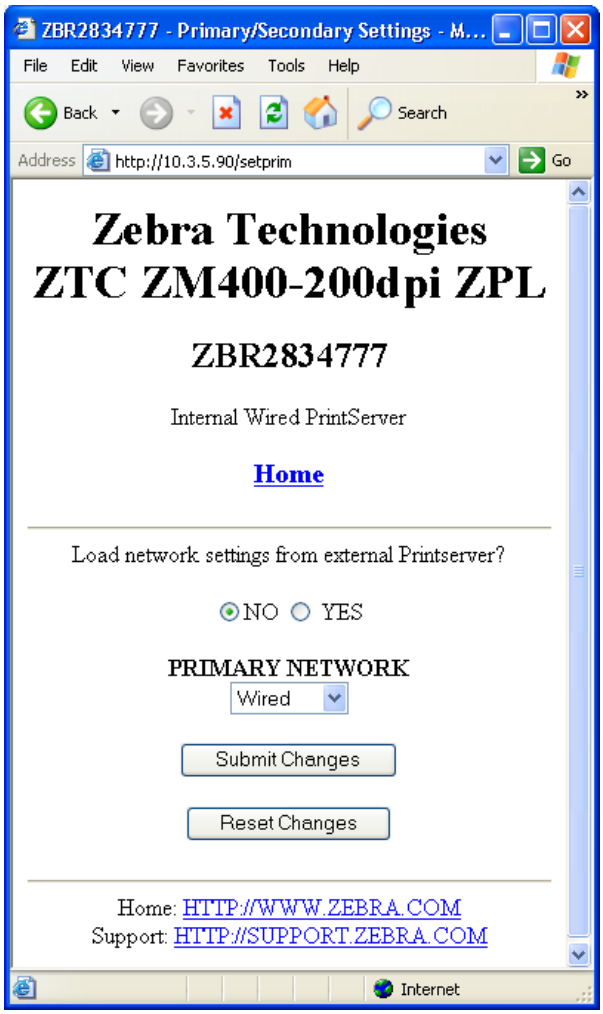
Note • For the G-Series printers, only the following links appear: SNMP, SMTP, and TCP/IP Settings.

Figure 28 • Network Configuration Page (ZM400/ZM600 Web Page Shown)

4. Click Primary/Secondary Settings.

   The Primary/Secondary Settings page opens.

Figure 29 • Primary/Secondary Settings Page



5. If you wish to load network settings from the external print server, click YES.

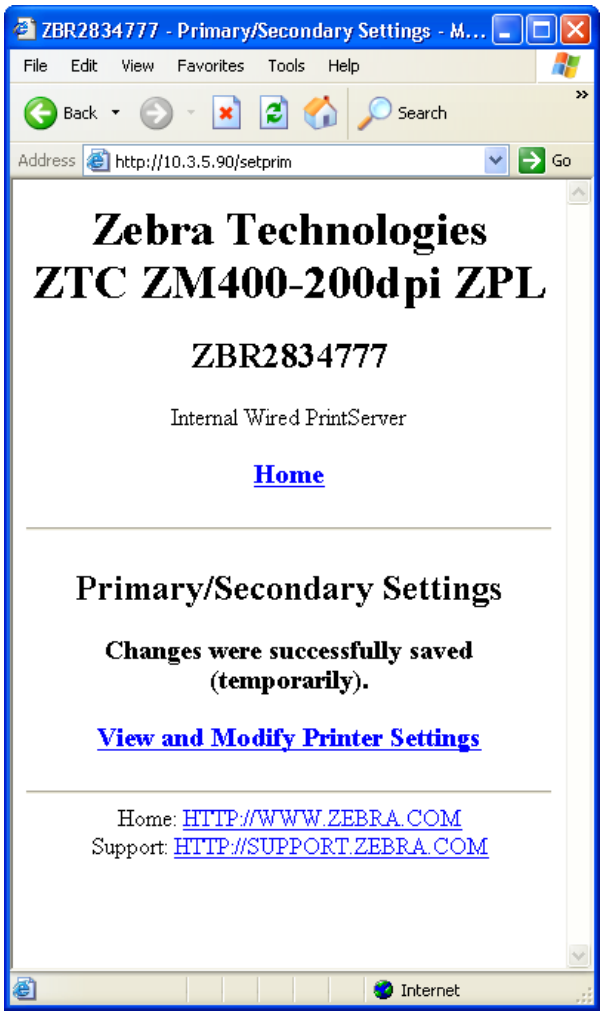
6. To change the primary network, click on the Primary Network drop-down. Select either Wired or Wireless print server as your primary network.

   Table 7 on page 69 outlines priorities and identifies which device becomes the active print server when multiple print servers are installed.

7. Click Submit Changes to apply your changes or click Reset Changes to revert back to previous settings.

   The Primary/Secondary Settings page confirms that your settings have been temporarily saved.

Figure 30 • Primary/Secondary Settings Saved



8. Click on View and Modify Printer Settings link.

9. From the View and Modify Printer Settings page, click on Save Current Configuration.

   This will permanently save your settings.

TCP/IP Settings

TCP/IP settings may be viewed and modified in this section. Several of these settings include:

- IP Address
- IP Protocol
- Subnet mask
- Default gateway

To change the TCP/IP settings, complete these steps:

1. From the Printer Home Page, click View and Modify Printer Settings.
   The View and Modify Printer Settings page opens.

Figure 31 • View and Modify Printer Settings

2. Click on Network Configuration.

   The Network Configuration page opens.

Note • For the G-Series printers, only the following links appear: SNMP, SMTP, and TCP/IP Settings.

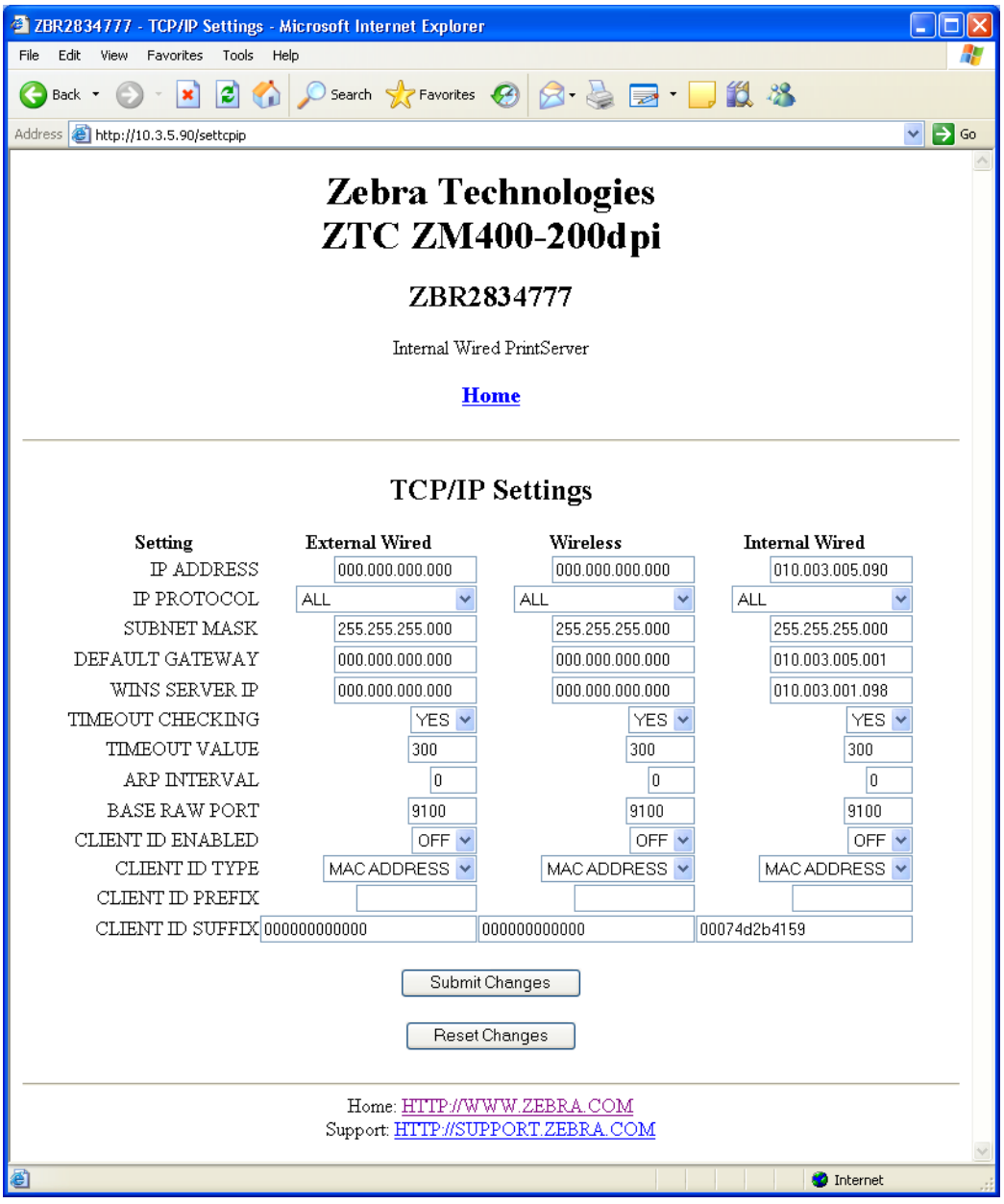
Figure 32 • Network Configuration Page (ZM400/ZM600 Web Page Shown)

3. Click TCP/IP Settings.

   The TCP/IP Settings page opens.

Note • For the G-Series printers, only the “Internal Wired” column appears on this page.

Figure 33 • TCP/IP Settings Page (ZM400/ZM600 Web Page Shown)



4. From the TCP/IP Settings page, you can modify settings for all installed print servers.

Note • The ZM400 and ZM600 printers support the simultaneous installation of an internal, external, and a wireless print server. See Table 7 on page 69 for more detailed information on priorities and setting the active print server when multiple print servers are present.

5. Click Submit Changes to accept and save your changes or click Reset Changes to revert to your previous settings.

Printer Controls

This page offers control over basic printer functions.

Other functions are also accessible from this page. These include:

- Feed — causes printer to feed one label.
- Cancel One Format — cancels the currently printing format.
- Cancel All Formats — cancels all formats.
- Reset Printer — causes printer to perform its standard reset without cycling power.

To view Printer Controls, complete these steps:

1. From the Printer Home Page, click Printer Controls.
   This Printer Controls page opens.

Figure 34 • Printer Controls

Important • In this view, you must have administrative rights to make changes to the printer controls.

Directory Listing

The directory page provides a listing of all file system devices (B:, E:, R:, Z:). The size, name, and location of each stored object appears.

Buttons are available to perform file management operations on the objects. The file management operations include:

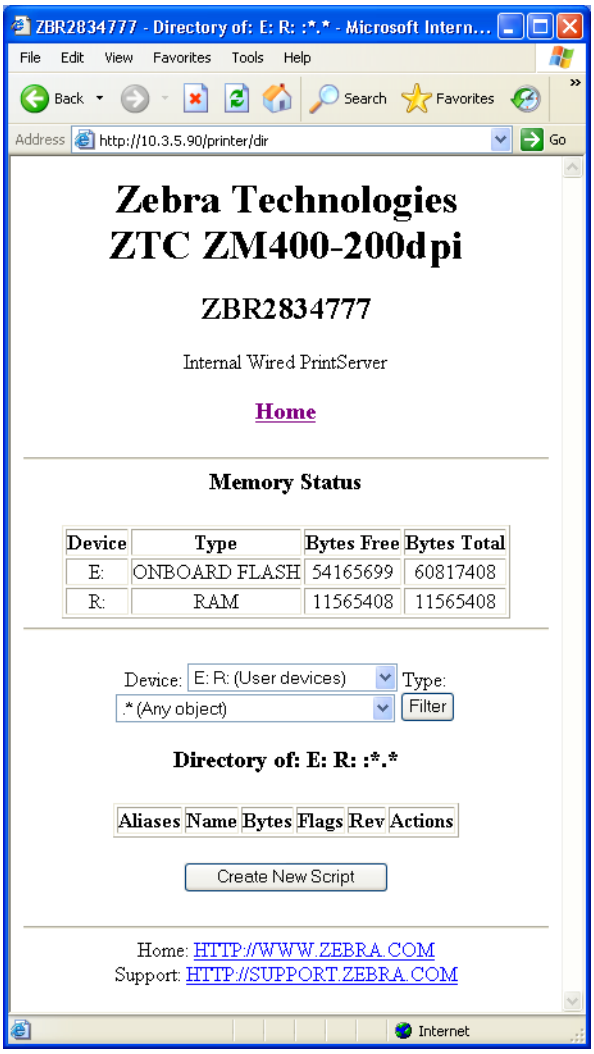
- Delete object — Not available for objects in read-only memory (Z:).
- Copy object to a new name and/or device — Not available for objects in read-only memory (Z:).

To view the Directory Listing, complete these steps:

1. From the Printer Home Page, click Directory Listing.

   The Directory Listing page opens. There are several fields to select in this view.

Figure 35 • Directory Listing



2. To create a script, click Create New Script.

Alert Setup

To configure the printer's interaction with ZebraNet Alert to be completely functional, SNMP settings must be established in these areas:

- The printer, via the WebView interface.
- The Alert Printer Management Utility for logging SNMP traps.

The ZebraLink messaging system provides for more than SNMP notification. Alerts can be routed to various destinations:

- TCP
- UDP
- email
- serial port
- parallel port destinations
- SNMP
- USB

Setting Alerts

Your 10/100 Internal Print Server allows you to configure your printer to send unsolicited Alerts.

Table 8 shows the conditions that can trigger alerts.

Table 8 • Alerts

Alert Type	Error Condition
ZebraLink Alerts	• Media out • Ribbon out • Printhead over-temp warning • Printhead under-temp warning • Head open • Power supply over-temp • Ribbon warning (in direct-thermal mode) • Rewind full • Cut error • Printer paused • PQ job completed • Label taken • Head element out • Power on

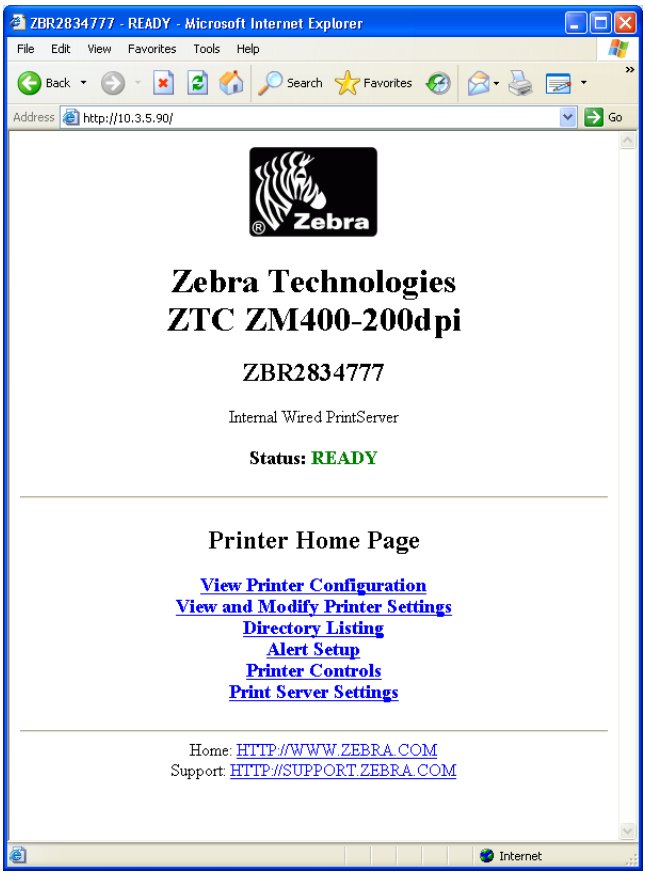
This section has step-by-step instructions for setting up an alert using ZebraLink™. For information on setting up alerts using ZebraNet View, see *ZebraNet Utilities* on page 97.

Important • If you do not have a ZebraLink-enabled printer, these steps will not work.

To view Alert Setup using ZebraLink, complete these steps:

1. Open a Web browser.
2. In the Address text-box, type your printer's IP address, and press Enter. The Printer Home Page opens.

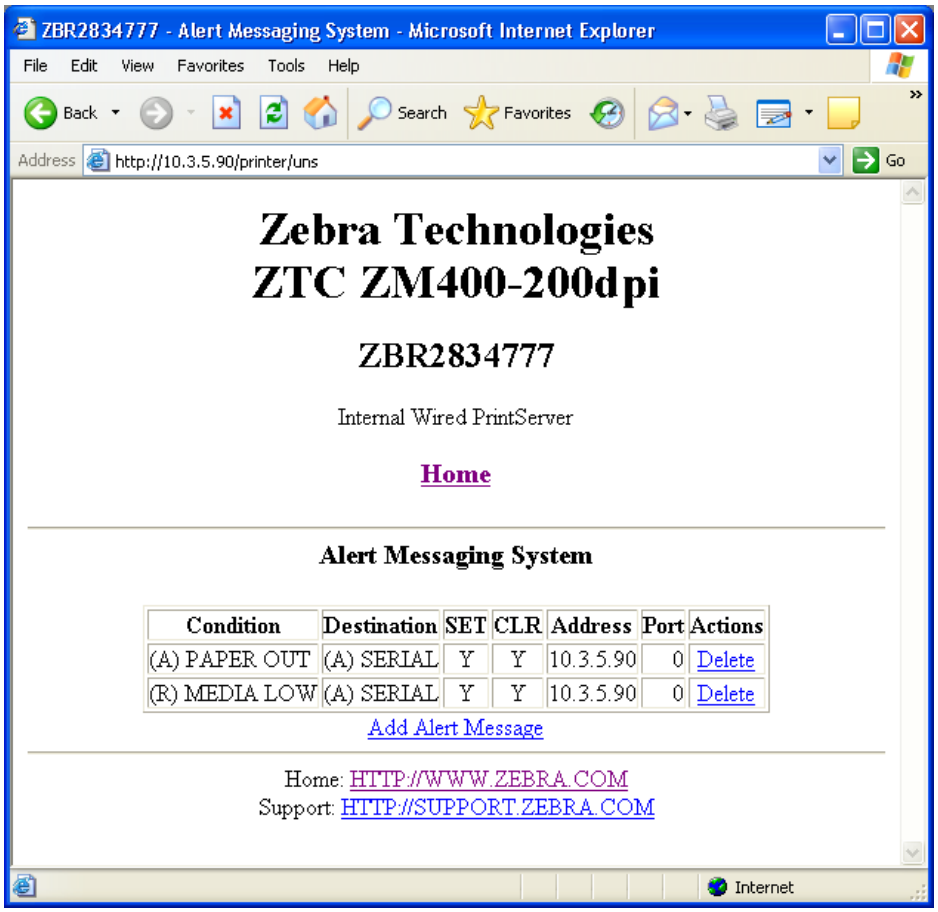
Figure 36 • Printer Home Page



3. From the Printer Home Page, click Alert Setup.

   The Alert Messaging System page opens.

Figure 37 • Alert Messaging System



   To add an alert, you need the default password.

4. To add an alert, click Add Alert Message.

5. Select accordingly.

6. You can use ZebraNet Alert to monitor alerts set through a ZebraLink-enabled printer.

   From this Web page, you can add alert messages notifying you when a printer is out of paper, needs a ribbon, and so on.

Establishing Email Alert Messaging

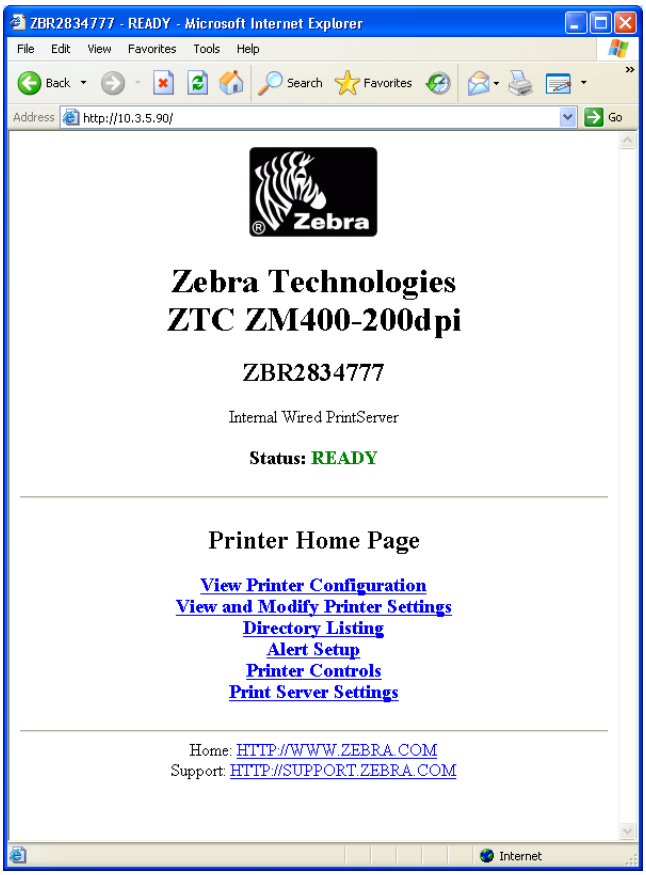
You can have multiple email addresses set up for routing different error messages, or split notifications between email and other network management tools.

To begin receiving email notification of errors, complete these steps:

1. Open a Web browser.
2. In the Address text-box, type in the printer's IP address.

   The Printer Home Page opens.

Figure 38 • Printer Home Page



3. From the *Printer Home Page*, click Alert Setup.

   The Alert Setup page shows a list of message notifications and their respective destinations (if no notifications are listed).

4. To set up email notification, go to the Alert Setup page and click Add Alert Message.
   The Add Alert Message page opens.

Figure 39 • Add Alert Message

5. Specify the condition to send over email, such as **HEAD ELEMENT BAD** or **PAPER OUT**.
6. Set Destination to Email.
7. In the SET drop-down box, select YES.
   You will be notified via email whenever your specific condition is detected.
8. In the CLR drop-down box, select YES if you wish to be notified when the specific condition is cleared.

9. Enter a valid email address to send the alert messages to.

   Example • `admin@yourcompany.net` (The Port field can be ignored for email setup.)

   Important • A password is required. If you forget to enter the password, the alerts you just set are deleted.

10. Click Add Alert Message.

    To receive email alert, you must give 10/100 Internal PS the IP address of your mail server that is running SMTP.

11. To save current settings, click Save Printer Setting.

12. Enter the password and click Save Current Configuration.

    Important • The printer accepts only the last configuration made.

13. You can continue to add more Alerts, if finished:

    - From the Printer Home Page, select PrintServer Settings > Network Communications Setup.
    - Click SMTP Email Alerts.
    - Specify your SMTP server address.

    Note • The SMTP Server address might be referred to as Mail Server address.

    When these steps are done, you can begin receiving email notification messages.

Checking 10/100 Internal PS Configuration Settings

This section provides steps on how to check the 10/100 Internal PS configuration settings using a browser.

Browser

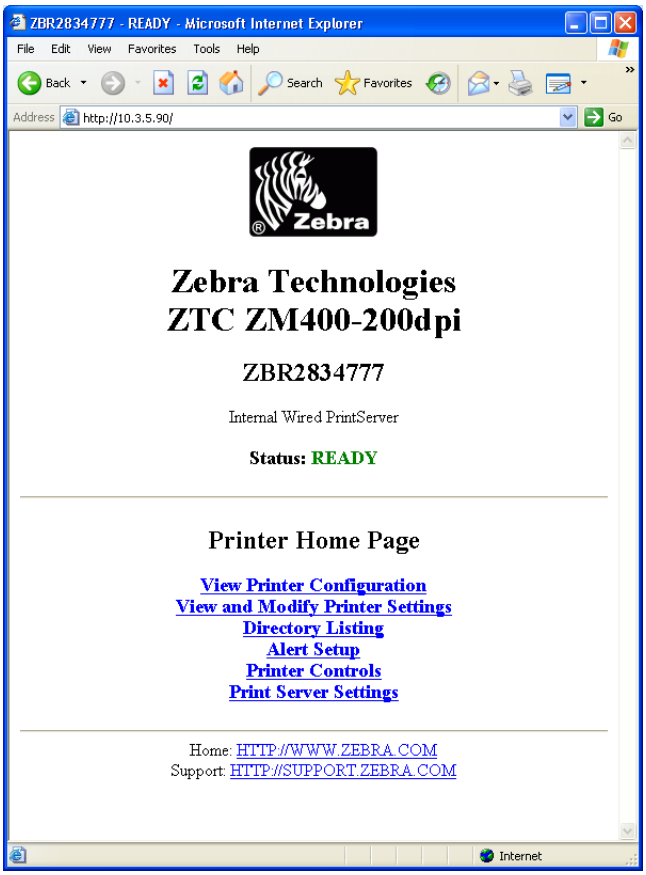
This section provides steps on how to check the 10/100 Internal PS configuration settings using its Web pages.

To access the 10/100 Internal PS settings, complete these steps:

1. Open a Web browser.
2. In the Address text-box, type your printer's IP address, then press Enter.

   Your browser page looks similar to Figure 40.

Figure 40 • Browser View

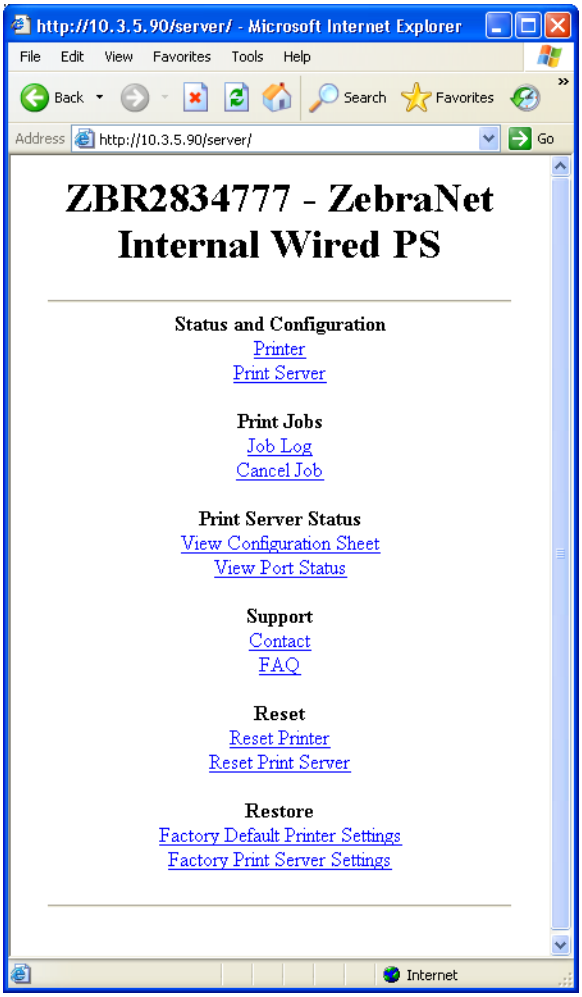


3. From the Printer Home Page, click Print Server Settings.

The default User ID and password are required.

The Print Server Settings Page opens.

Figure 41 • Print Server Settings Page

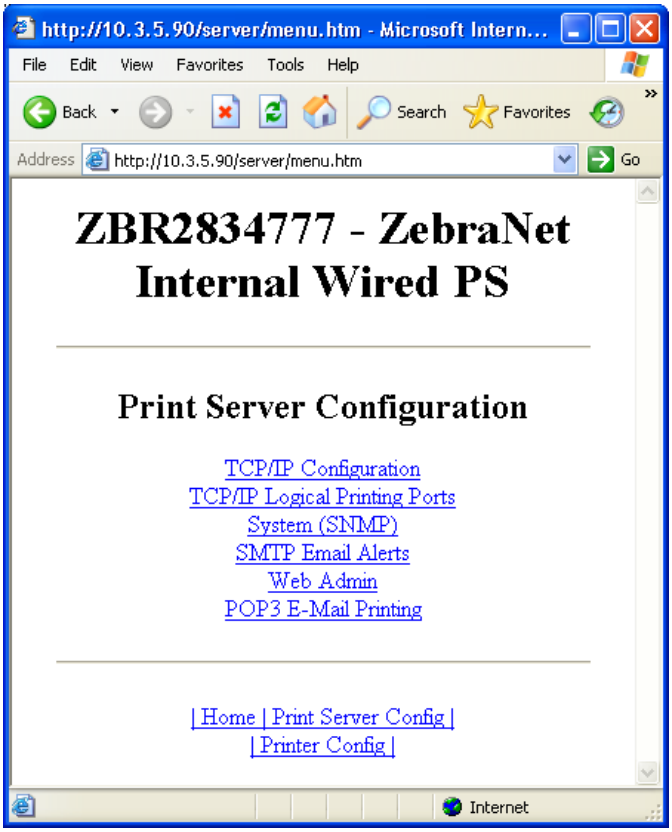


To access the 10/100 Internal PS settings, complete these steps:

1. From the Printer Home page, click Print Server.

   The Print Server Configuration page opens.

Figure 42 • Print Server Configuration



2. For details on the configuration choices, see *Configuring the Print Server* on page 91.

Configuring the Print Server

This section provides the steps to configure the 10/100 Internal PS using ZebraLink Web and a web browser.

To change the TCP/IP Configuration, complete these steps:

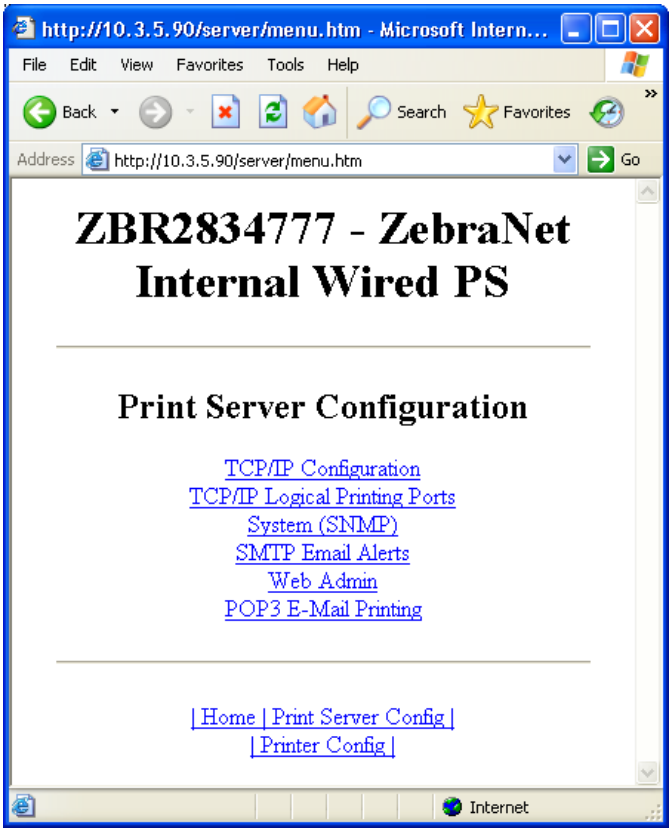
1. From the Printer Home page, click Print Server Settings.

   The Print Server Configuration page opens.

2. From the Print Server Configuration page, click Print Server.

   The Print Server Configuration page opens.

Figure 43 • Print Server Configuration



3. From the Print Server Configuration page, you have a menu from which to choose. See Table 3 on page 26 for more detailed information on these settings.

4. Select the appropriate link to make your change(s).

Sending Email to Your Zebra Printer

To easily transfer instructions and data to your printer from a remote location, the 10/100 Internal PS allows you to send email to the printer. This is set up under the link POP3 Email Printing. You need to provide the address of the network POP3 server, a user name, and a password. With this option, you can create a text-based email containing ZPL II code and transfer it to the printer.

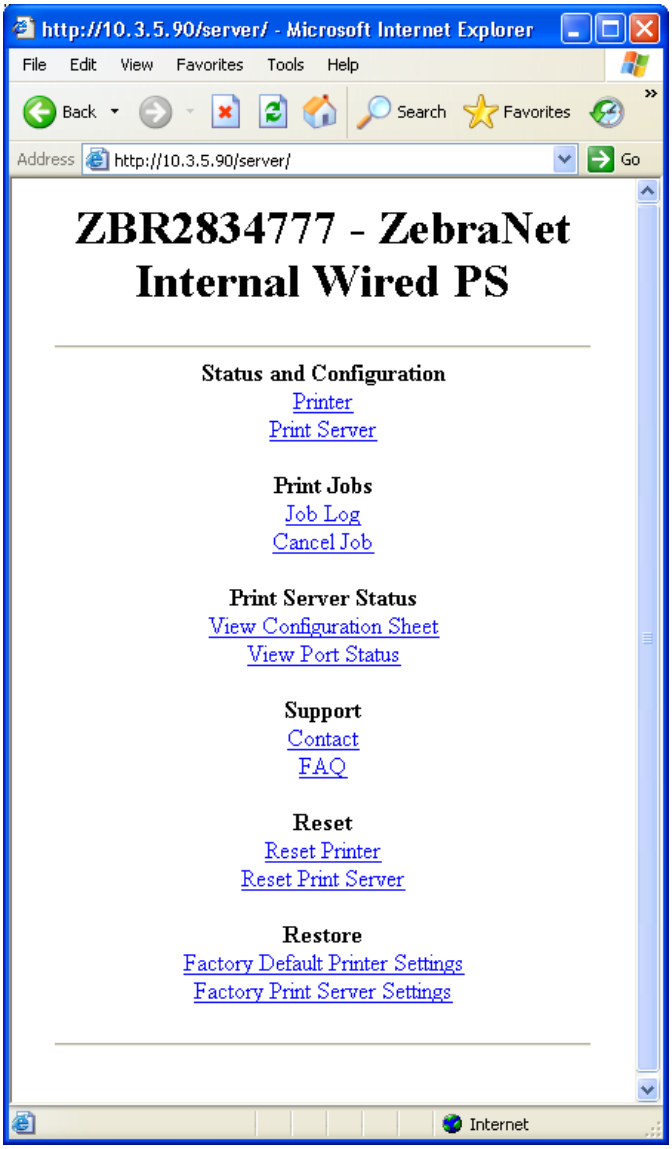
Note • Email attachments sent to the printer are not supported.

By using the proper ZPL II commands, files can be saved, loaded, printed, copied, and deleted, just as if the data were transferred from a serial or parallel port.

To access POP3, complete these steps:

1. From the Printer Home page, click Print Server Settings.
   The Print Server Settings Page opens.

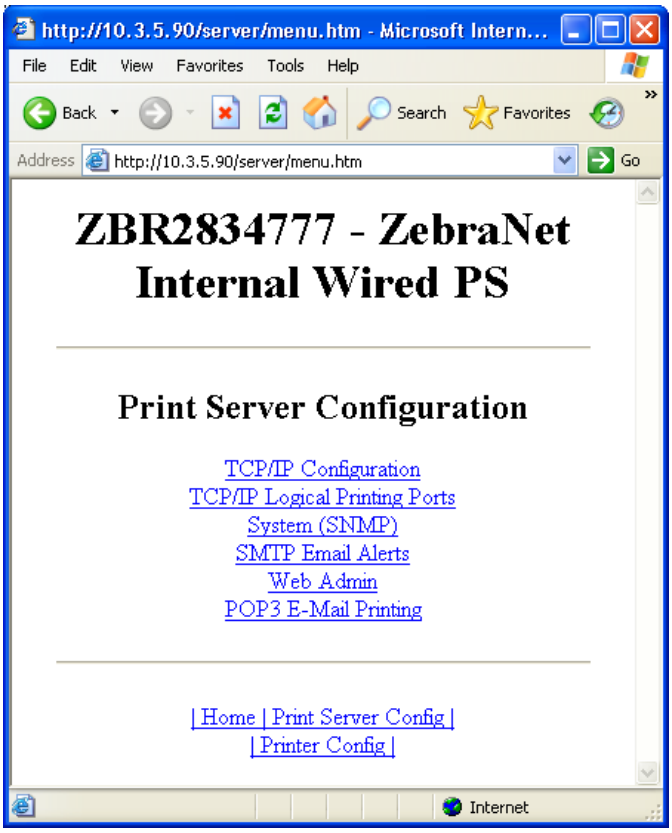
Figure 44 • Print Server Settings Page



2. From the Print Server Settings Page, click Print Server.

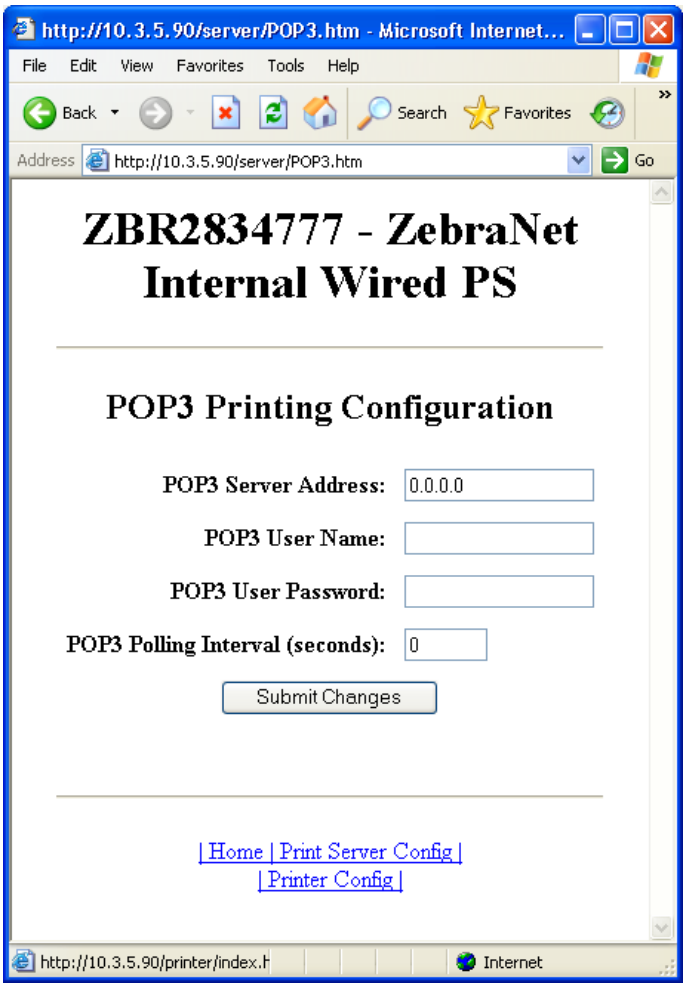
   The Print Server Configuration Page opens.

Figure 45 • Print Server Configuration



3. From the Print Server Configuration page, click POP3 E-mail Printing.
   The POP3 Printing Configuration page opens.

Figure 46 • POP3 Printing Configuration



4. Make the necessary changes, and click Submit Changes.

Notes • _____

B

ZebraNet Utilities

The appendix provides you with details on ZebraNet Utilities, the software suite of printer administration tools that complements and enhances both ZebraLink and the ZebraNet family of connectivity products.

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ZebraNet View

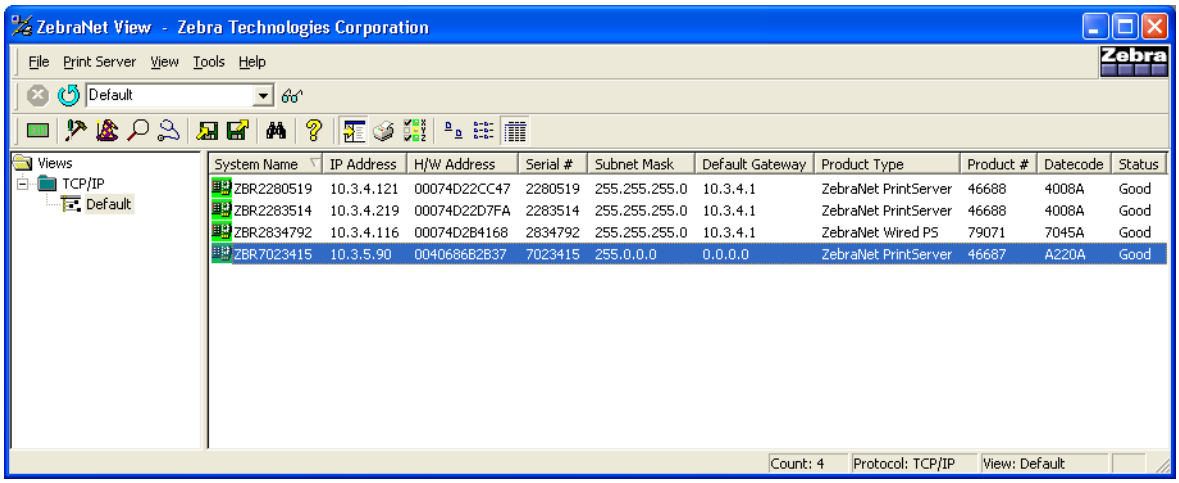
ZebraNet View offers powerful device management capabilities and allows you to locate printers automatically. It can search on parameters such as IP address, subnet, printer model, printer status, and many other user-defined characteristics.

To open ZebraNet View Utilities, complete these steps:

1. From the task bar, select Start > Programs > ZebraNet Utilities > ZebraNet View.

   The ZebraNet View dialog opens.

Figure 47 • ZebraNet View


ZebraNet View - Zebra Technologies Corporation
File Print Server View Tools Help
Zebra
Default
Views
TCP/IP
Default
System Name IP Address H/W Address Serial # Subnet Mask Default Gateway Product Type Product # Datecode Status
ZBR2280519 10.3.4.121 00074D22CC47 2280519 255.255.255.0 10.3.4.1 ZebraNet PrintServer 46688 4008A Good
ZBR2283514 10.3.4.219 00074D22D7FA 2283514 255.255.255.0 10.3.4.1 ZebraNet PrintServer 46688 4008A Good
ZBR2834792 10.3.4.116 00074D2B4168 2834792 255.255.255.0 10.3.4.1 ZebraNet Wired PS 79071 7045A Good
ZBR7023415 10.3.5.90 0040686B2B37 7023415 255.0.0.0 0.0.0.0 ZebraNet PrintServer 46687 A220A Good
Count: 4
Protocol: TCP/IP
View: Default

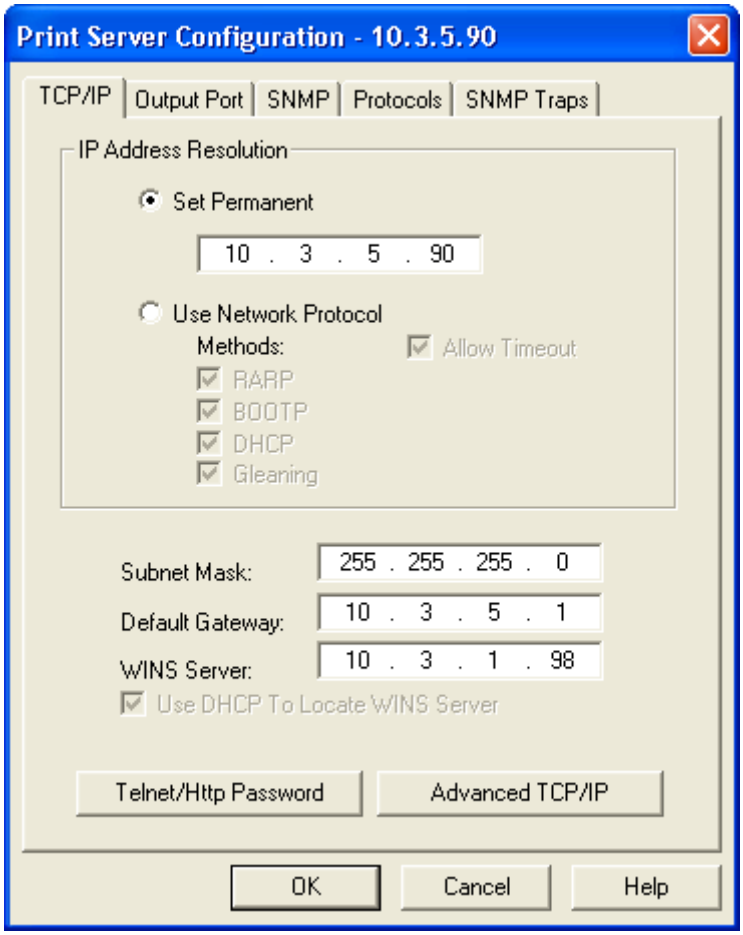
2. Select your printer.

Print Server Configuration

To configure your print server, complete these steps:

1. From the menu bar, select PrintServer > Configuration.
   The Print Server Configuration dialog opens.

Figure 48 • Print Server Configuration



There are multiple tabs that you can access to make changes to current settings.

ZebraNet Alert

ZebraNet Alert gives you the ability to manage your Zebra printers by immediately notifying System Administrators of printer error or warning conditions, which reduces printer downtime and increases application efficiency. Using Web-based configuration tools, selected errors or warning conditions can be routed to a variety of services such as email messages, wireless pagers, or the ZebraNet Alert.

Table 9 shows the conditions that can trigger alerts and the possible destinations.

Table 9 • ZebraNet Alert and Destinations

Alert Type	Error Condition
ZebraLink Alerts	• Media out • Ribbon out • Printhead over-temp warning • Printhead under-temp warning • Head open • Power supply over-temp • Ribbon warning (in direct-thermal mode) • Rewind full • Cut error • Printer paused • PQ job completed • Label taken • Head element out • Power on
ZebraNet Alert Destinations	Unsolicited Alert messages can be directed to the following destinations: • Email (10/100 Internal PS-specific) • TCP (10/100 Internal PS-specific) • UDP (10/100 Internal PS-specific) • SNMP (10/100 Internal PS-specific) • Serial • Parallel • USB

ZebraNet Alert Using SNMP

You can send notifications over SNMP only, for use with ZebraNet Alert or a similar network management utility.

To configure the 10/100 Internal PS to send alerts across a TCP/IP Network using ZebraNet Alert, complete these steps:

Important • If you did not install ZebraNet Alert during the ZebraNet Utilities installation, see *ZebraNet Utilities* on page 50.

1. From the task bar, select Start > Programs > ZebraNet Utilities > ZebraNet View.
2. Select the printer you want.

If...	Then...
A DHCP server is present	The 10/100 Internal PS will already have an IP address.
No DHCP server is present	You may need to assign the printer an IP address.

3. To assign your printer an IP address, from the menu bar, select Print Server > Configuration.
4. For PrintServer SNMP Traps, select the SNMP Traps tab.
5. Enter the trap destination and options.

   This tells the 10/100 Internal PS what TCP/IP address to send the alerts to, and under what circumstances to send error and log reports. Entering 255.255.255.255 broadcasts the message to every host on the network with an SNMP program running.
6. For ZebraNet Alert to get and display the messages, you need to open ZebraNet Alert. To do this, follow these steps:
   a. From the task bar, select Start > Programs > ZebraNet Utilities > ZebraNet Alert.

   Important • The SNMP trap settings must be established to communicate with 10/100 Internal PS if messages are sent to the ZebraNet Alert.

   b. In the ZebraNet Alert dialog, from the menu bar, select View > Filter Settings.
   c. From the View Filter - Devices tab, choose your settings accordingly.

   Note • If you select **No device filtering**, messages from every printer are caught; **Device Address** allows you to specify from which IP address data will come.

   d. The **View Filter - Events** tab allows you to select individual events you want the program to be aware of.

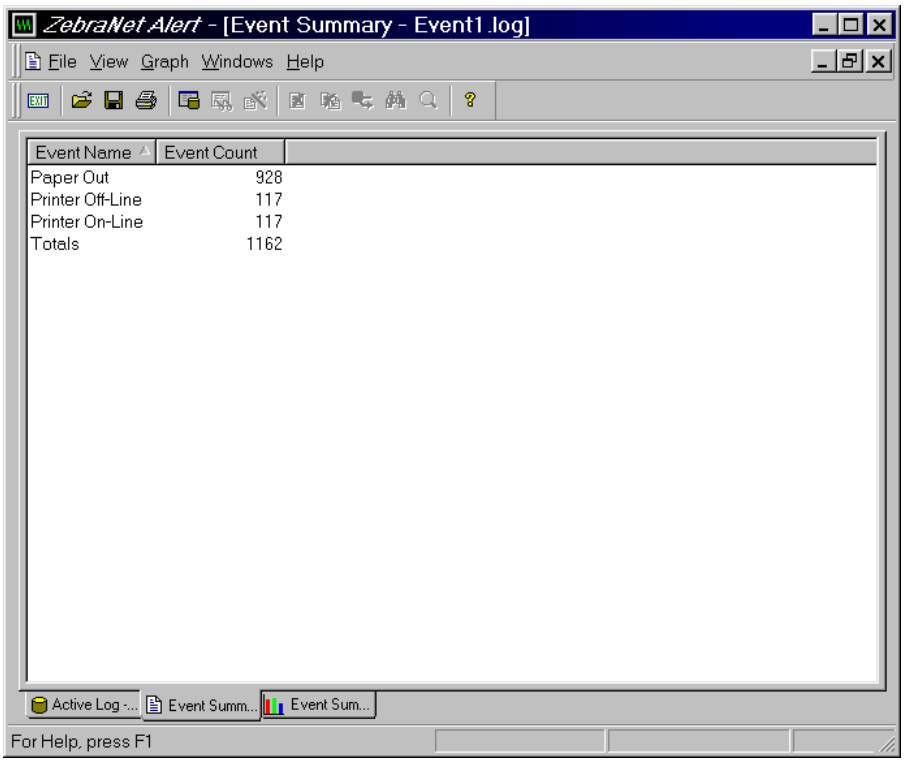
   Important • Now SNMP Alert messages for the 10/100 Internal PS can be set up in WebView. From the printer's home page, activate the link to Alert Setup. You can add messages that are sent to the ZebraNet Alert for Windows by choosing SNMP as a destination.

Open ZebraNet Alert

To open ZebraNet Alert, complete these steps:

1. From the task bar, select Start > ZebraNet Utilities > ZebraNet Alert.
2. In the ZebraNet Alert dialog, from the menu bar, select Report.
   The report menu option has multiple report selections.
3. Select the type of report you want to generate.
   Figure 49 is an example of the Event Summary report. Notice it generates a `.log` file.

Figure 49 • Event Summary Report



Setting Alerts

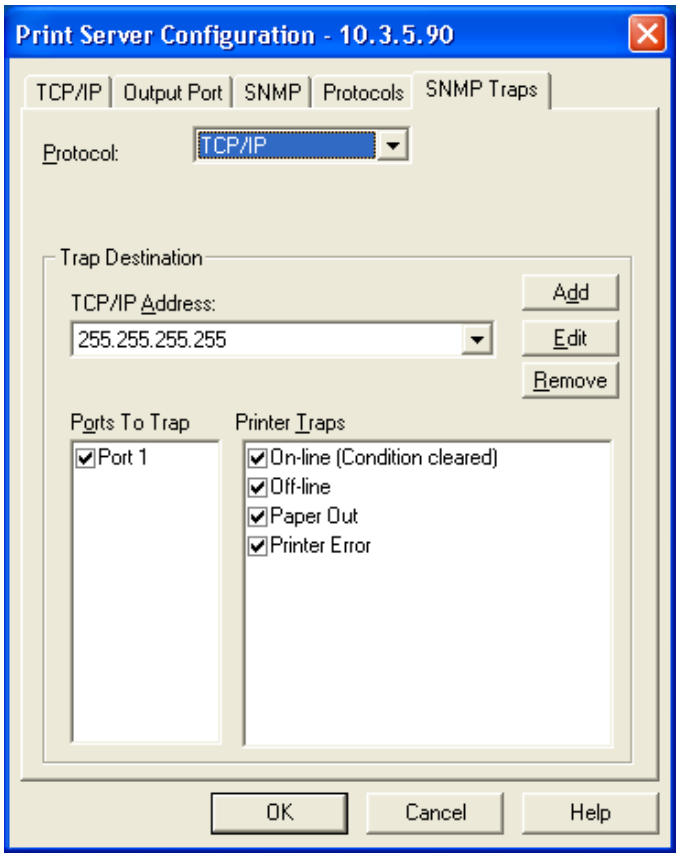
This section includes step-by-step instructions for setting up an alert using ZebraNet View. For information on setting up alerts using ZebraLink, see *ZebraLink WebView* on page 57.

To set alerts (traps) using ZebraNet View, complete these steps:

1. In the ZebraNet View dialog, from the menu bar select Print Server > Configuration.
2. Click the SNMP Traps tab.

   The Printer Traps check boxes are the alerts you can set from ZebraNet View.

Figure 50 • SNMP Traps

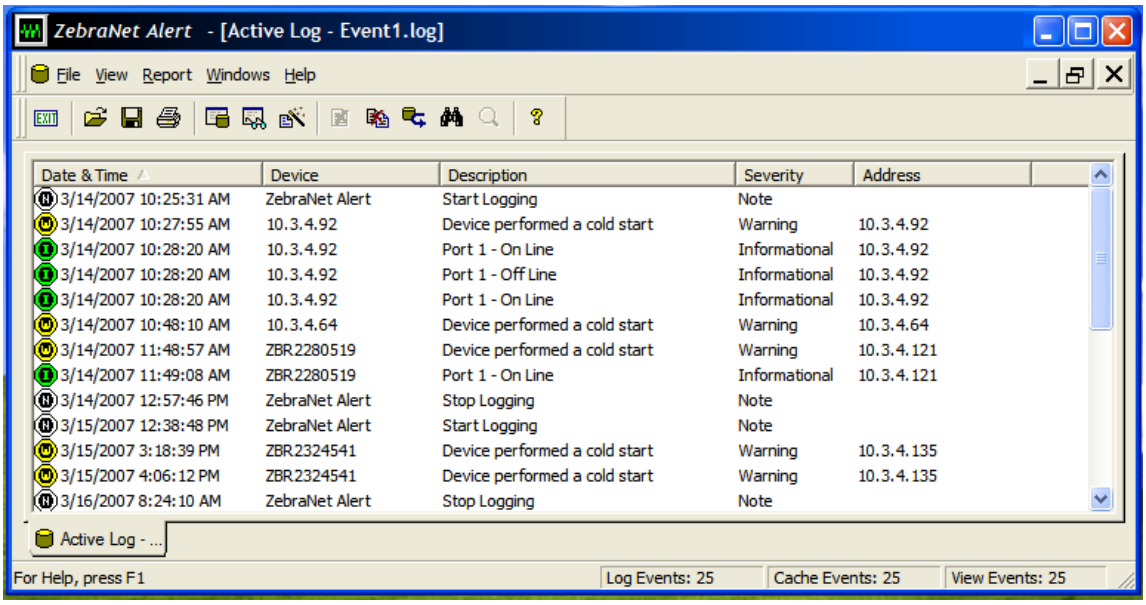


3. Enable the alerts (printer traps) you want to set here and click OK.

4. To monitor the alerts you established, from the task bar select Start > ZebraNet Utilities > ZebraNet Alert.

   The ZebraNet Alert dialog opens.

Figure 51 • ZebraNet Alert


ZebraNet Alert - [Active Log - Event1.log]
File View Report Windows Help
Date & Time | Device | Description | Severity | Address
3/14/2007 10:25:31 AM | ZebraNet Alert | Start Logging | Note |
3/14/2007 10:27:55 AM | 10.3.4.92 | Device performed a cold start | Warning | 10.3.4.92
3/14/2007 10:28:20 AM | 10.3.4.92 | Port 1 - On Line | Informational | 10.3.4.92
3/14/2007 10:28:20 AM | 10.3.4.92 | Port 1 - Off Line | Informational | 10.3.4.92
3/14/2007 10:28:20 AM | 10.3.4.92 | Port 1 - On Line | Informational | 10.3.4.92
3/14/2007 10:48:10 AM | 10.3.4.64 | Device performed a cold start | Warning | 10.3.4.64
3/14/2007 11:48:57 AM | ZBR2280519 | Device performed a cold start | Warning | 10.3.4.121
3/14/2007 11:49:08 AM | ZBR2280519 | Port 1 - On Line | Informational | 10.3.4.121
3/14/2007 12:57:46 PM | ZebraNet Alert | Stop Logging | Note |
3/15/2007 12:38:48 PM | ZebraNet Alert | Start Logging | Note |
3/15/2007 3:18:39 PM | ZBR2324541 | Device performed a cold start | Warning | 10.3.4.135
3/15/2007 4:06:12 PM | ZBR2324541 | Device performed a cold start | Warning | 10.3.4.135
3/16/2007 8:24:10 AM | ZebraNet Alert | Stop Logging | Note |
Active Log - ...
For Help, press F1
Log Events: 25
Cache Events: 25
View Events: 25

In this dialog, you can view the log of errors and monitor the activity of your printer(s).

Establishing Email Alert Messaging

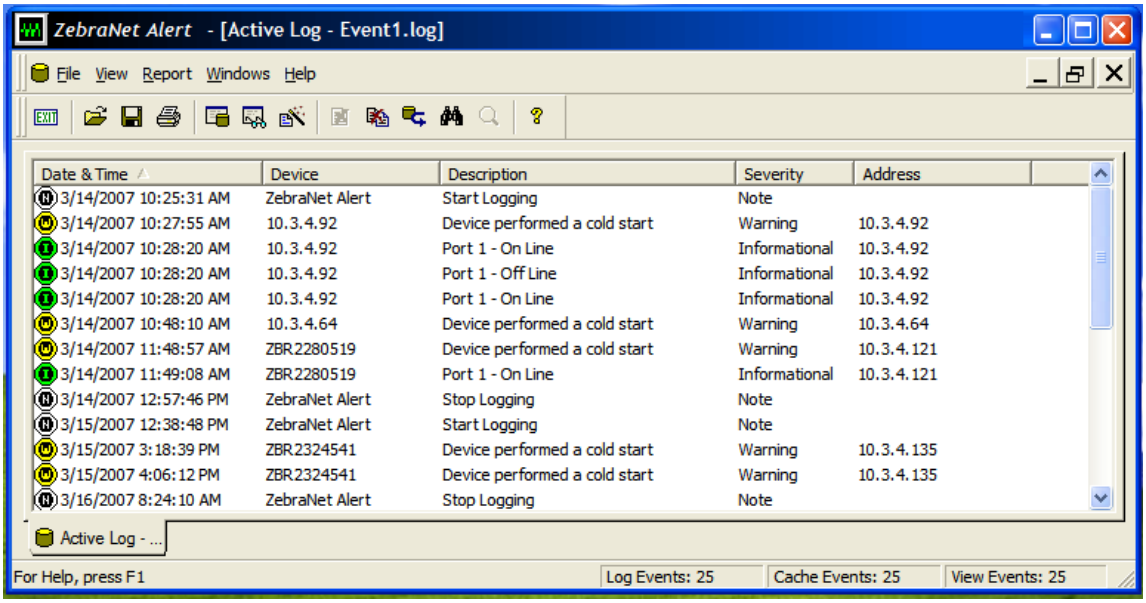
ZebraNet Alert supports email notification of printer errors sent directly to any valid email address. You can have multiple email addresses set up for routing different error messages, or split notifications between email and other network management tools.

To monitor alerts, complete these steps:

1. From the task bar, select Start > Programs > ZebraNet Utilities > ZebraNet Alert.

   The Active Log dialog opens, displaying a list of all the logged alerts.

Figure 52 • Active Log Dialog


ZebraNet Alert - [Active Log - Event1.log]
File View Report Windows Help
Date & Time | Device | Description | Severity | Address
3/14/2007 10:25:31 AM | ZebraNet Alert | Start Logging | Note |
3/14/2007 10:27:55 AM | 10.3.4.92 | Device performed a cold start | Warning | 10.3.4.92
3/14/2007 10:28:20 AM | 10.3.4.92 | Port 1 - On Line | Informational | 10.3.4.92
3/14/2007 10:28:20 AM | 10.3.4.92 | Port 1 - Off Line | Informational | 10.3.4.92
3/14/2007 10:28:20 AM | 10.3.4.92 | Port 1 - On Line | Informational | 10.3.4.92
3/14/2007 10:48:10 AM | 10.3.4.64 | Device performed a cold start | Warning | 10.3.4.64
3/14/2007 11:48:57 AM | ZBR2280519 | Device performed a cold start | Warning | 10.3.4.121
3/14/2007 11:49:08 AM | ZBR2280519 | Port 1 - On Line | Informational | 10.3.4.121
3/14/2007 12:57:46 PM | ZebraNet Alert | Stop Logging | Note |
3/15/2007 12:38:48 PM | ZebraNet Alert | Start Logging | Note |
3/15/2007 3:18:39 PM | ZBR2324541 | Device performed a cold start | Warning | 10.3.4.135
3/15/2007 4:06:12 PM | ZBR2324541 | Device performed a cold start | Warning | 10.3.4.135
3/16/2007 8:24:10 AM | ZebraNet Alert | Stop Logging | Note |
Active Log - ...
For Help, press F1
Log Events: 25
Cache Events: 25
View Events: 25

2. From this dialog, you can track the printer(s) activity and status.

3. From the menu bar, you can explore all of the other features, such as Reports.

Checking 10/100 Internal PS Configuration Settings

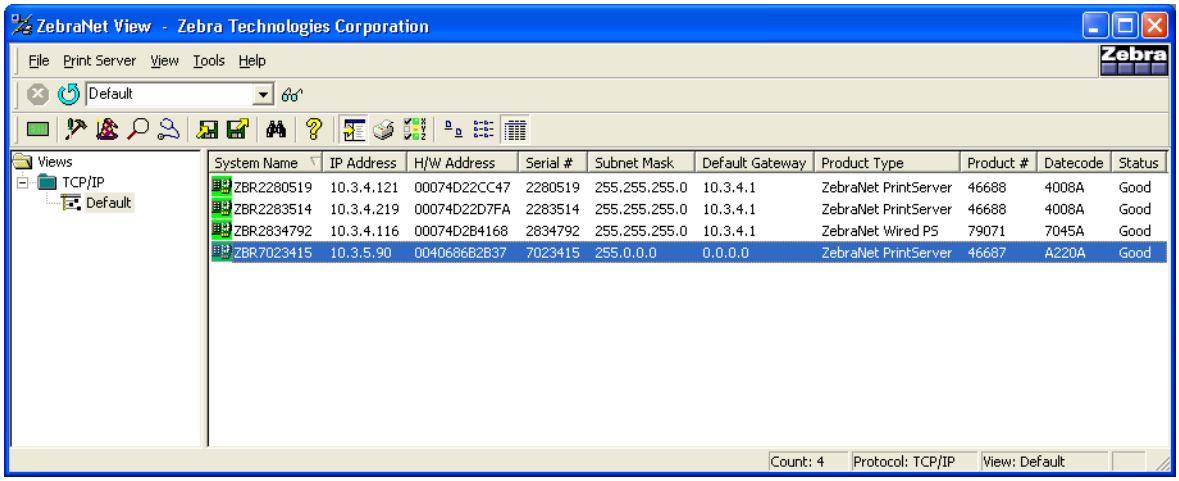
This section provides steps on how to check the 10/100 Internal PS configuration settings using ZebraNet View.

To check configuration settings, complete these steps:

1. From the task bar, select Start > Programs > ZebraNet Utilities > ZebraNet View.

   The ZebraNet View dialog opens.

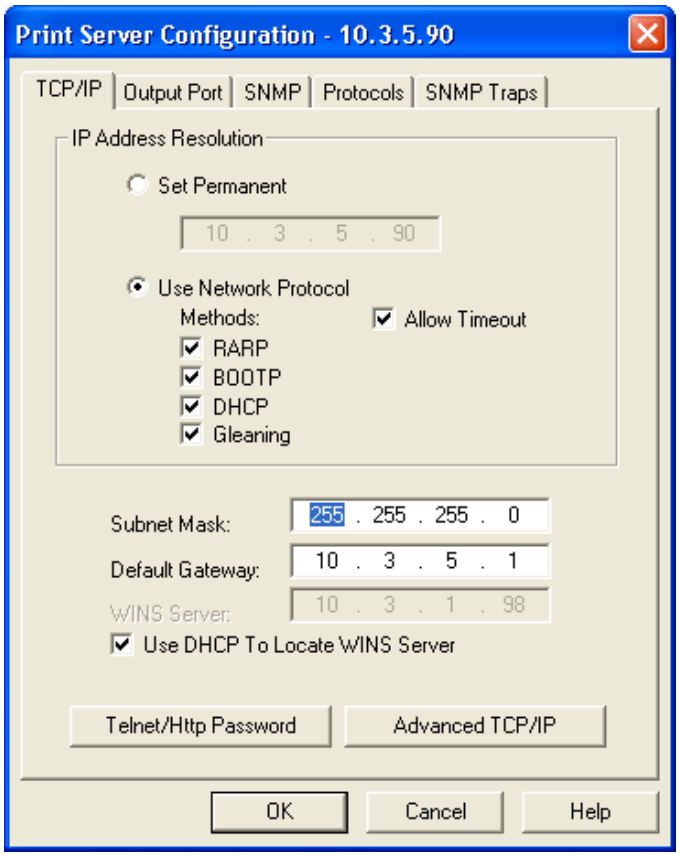
Figure 53 • ZebraNet View


ZebraNet View - Zebra Technologies Corporation
File Print Server View Tools Help
Zebra
Default
Views
TCP/IP
Default
System Name IP Address H/W Address Serial # Subnet Mask Default Gateway Product Type Product # Datecode Status
ZBR2280519 10.3.4.121 00074D22CC47 2280519 255.255.255.0 10.3.4.1 ZebraNet PrintServer 46688 4008A Good
ZBR2283514 10.3.4.219 00074D22D7FA 2283514 255.255.255.0 10.3.4.1 ZebraNet PrintServer 46688 4008A Good
ZBR2834792 10.3.4.116 00074D2B4168 2834792 255.255.255.0 10.3.4.1 ZebraNet Wired PS 79071 7045A Good
ZBR7023415 10.3.5.90 0040686B2B37 7023415 255.0.0.0 0.0.0.0 ZebraNet PrintServer 46687 A220A Good
Count: 4
Protocol: TCP/IP
View: Default

2. From the menu bar, select Print Server > Configuration.

   The Print Server Configuration dialog opens:

Figure 54 • Print Server Configuration



This dialog offers multiple tabs from which to choose. Each tab contains various configuration settings that you can change.

For details on the configurations, see *Print Server Configuration* on page 99.

ZebraNet View Java Applet

ZebraNet View Java Applet is a Java-based version of ZebraNet View. This can run on any enabled platform that can run a Java virtual machine, such as Windows, UNIX, Linux, and many others.

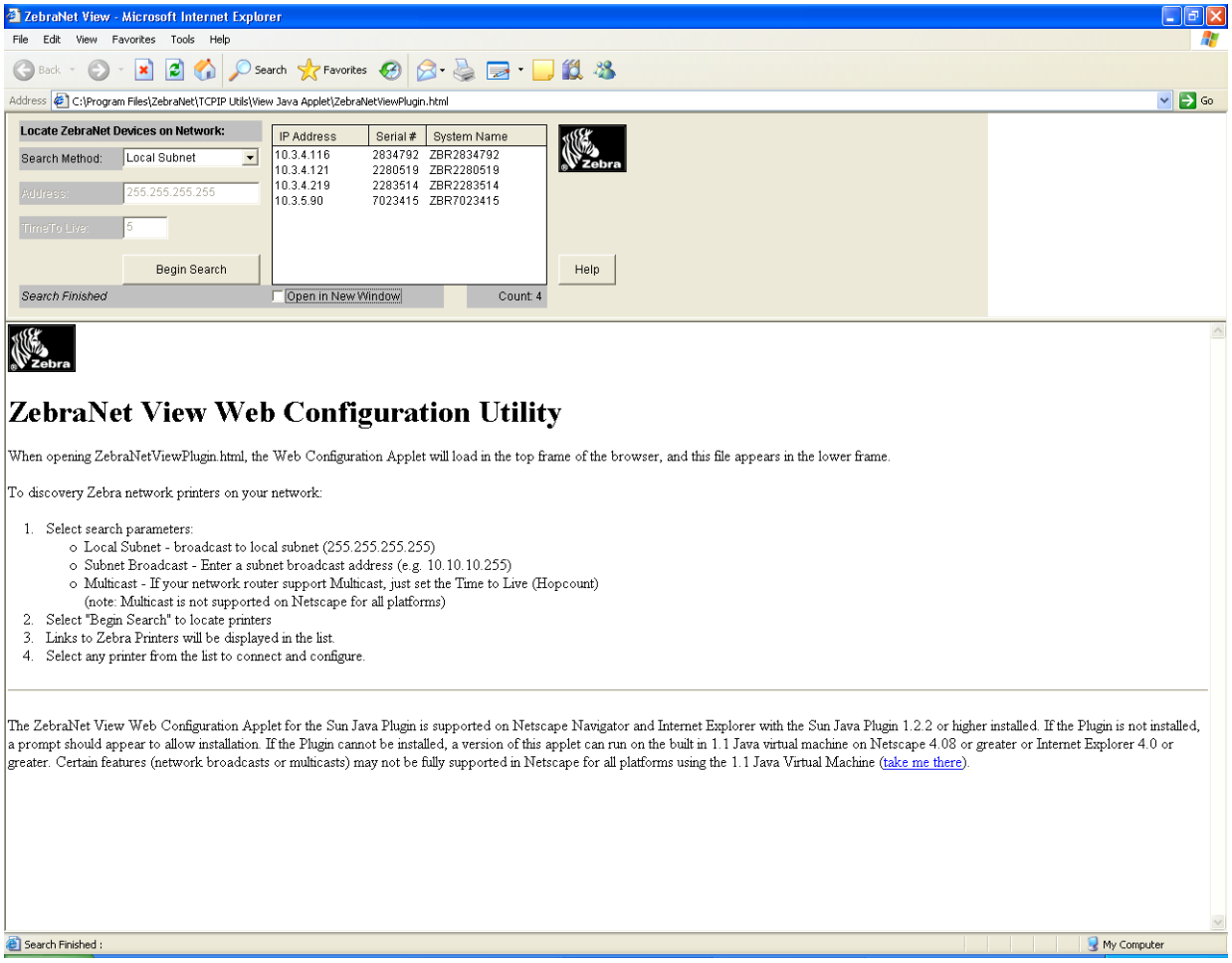
Important • To use ZebraNet View Java Applet, you must have installed ZebraNet Utilities and then installed this application. For installation instructions for ZebraNet Utilities, see *ZebraNet View Java Applet* on page 54.

To access ZebraNet View Java Applet, complete these steps:

1. From the task bar, select Start > Programs > ZebraNet Utilities > ZebraNet View Java Applet 1.0.

   This dialog opens.

Figure 55 • ZebraNet View Java Applet 1.0


ZebraNet View - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Address C:\Program Files\ZebraNet\TCPIP Utils\View Java Applet\ZebraNetViewPlugin.html
Locate ZebraNet Devices on Network:
Search Method: Local Subnet
Address: 255.255.255.255
Time To Live: 5
Begin Search
Search Finished
IP Address Serial # System Name
10.3.4.116 2834792 ZBR2834792
10.3.4.121 2280519 ZBR2280519
10.3.4.219 2283514 ZBR2283514
10.3.5.90 7023415 ZBR7023415
Open in New Window
Count: 4
Help
ZebraNet View Web Configuration Utility
When opening ZebraNetViewPlugin.html, the Web Configuration Applet will load in the top frame of the browser, and this file appears in the lower frame.
To discovery Zebra network printers on your network:
1. Select search parameters:
o Local Subnet - broadcast to local subnet (255.255.255.255)
o Subnet Broadcast - Enter a subnet broadcast address (e.g. 10.10.10.255)
o Multicast - If your network router support Multicast, just set the Time to Live (Hopcount)
(note: Multicast is not supported on Netscape for all platforms)
2. Select "Begin Search" to locate printers
3. Links to Zebra Printers will be displayed in the list.
4. Select any printer from the list to connect and configure.
The ZebraNet View Web Configuration Applet for the Sun Java Plugin is supported on Netscape Navigator and Internet Explorer with the Sun Java Plugin 1.2.2 or higher installed. If the Plugin is not installed, a prompt should appear to allow installation. If the Plugin cannot be installed, a version of this applet can run on the built in 1.1 Java virtual machine on Netscape 4.08 or greater or Internet Explorer 4.0 or greater. Certain features (network broadcasts or multicasts) may not be fully supported in Netscape for all platforms using the 1.1 Java Virtual Machine (take me there).
Search Finished :
My Computer

2. In the Search Method drop-down box, select the search method you want.
3. Click Begin Search.

   It searches your network for all networked Zebra printers, discovers them, and lists them.
4. When you select a device from the discovery list, the selected device's Home Page appears in the lower portion of the view (it replaces the ZebraNet View Web Configuration Utility content).

ZebraNet Connect IP

ZebraNet Connect IP allows you to send jobs to print servers that use Dynamic IP addresses (DHCP). It also notifies you of printer errors, such as `paper out` or `head open`. When print jobs are printed through ZebraNet Connect IP, they are sent directly to 10/100 Internal PS and are not routed through a network server, resulting in a reduction of network traffic.

Note • The DHCP feature of ZebraNet Connect IP can rediscover a 10/100 Internal PS on the local subnet, even when its IP address might be changing (for example, when using DHCP for IP address resolution). The 10/100 Internal PS is relocated by its port name as configured through ZebraNet View (the default name is Serial Number-Port Number). This feature is enabled on the local subnet only. A non-local 10/100 Internal PS device is not rediscovered if the IP address changes.

Setting up a ZebraNet Connect IP

If you have printing problems while using the ZebraNet Connect IP printing port, you may check the status of the port or change its settings through the printer Properties dialog.

- For Windows 95/98, select Port Settings under the Details tab.
- For Windows NT 4.0 or Windows 2000, select Configure Port under the Ports tab.

Windows NT 4.0/Windows 2000

If you are using the Windows NT 4.0 or Windows 2000 operating system, use the following procedure to set up a printer port for the 10/100 Internal PS.

To set up a printer port for the 10/100 Internal PS, complete these steps:

1. From the task bar, select Start > Settings > Printers.
2. Select the Windows printer to use when printing with the 10/100 Internal PS.
3. From the menu bar, select File > Properties.
4. To add a ZebraNet Connect IP port, in the Ports tab select Add Port.
5. From the list of Available Printer Ports, select ZebraNet Connect Monitor as the type of port to add, and click New Port.

Note • If ZebraNet Connect IP monitor is not listed, verify that the ZebraNet Connect IP software has been properly installed. To do this, you need to reinstall the software and choose Modify.

From the Add ZebraNet Connect Port screen, there is a list of all 10/100 Internal PS devices available on the local subnet.

- The TCP/IP monitor searches only the local subnet.

6. If the port you want to add is listed in the Ports Available on Local Subnet window, select the port name. If the port you want to use is not listed, you can:
   - Select Cancel and repeat step 5 to rediscover the print servers.
   - In ZebraNet Connect, click the Locate Non-local Device button and enter the static TCP/IP Address used for the 10/100 Internal PS.

Note • The ZebraNet Connect for TCP/IP DHCP discovery feature relocates a 10/100 Internal PS device on the local subnet by its port name, even if the IP address changes. This feature is enabled on the local subnet only. A non-local 10/100 Internal PS device is not rediscovered if the IP address changes.

7. Click Add.
8. To close the Printer Ports dialog, click Cancel.
9. To save the configuration, click OK.

Now you can use ZebraNet Connect. Whenever you print to the Windows printer configured with ZebraNet Connect, your print job will go directly to the ZebraNet 10/100 Internal PS port.

Windows 95/98/Me

To set up a 10/100 Internal PS port using Windows 95/Windows 98/Me, complete these steps:

1. From the task bar, select Start > Settings > Printers.
2. Select the Windows printer that you want to print with ZebraNet Connect IP.

Note • Under Windows 95, you have to set up the printer for a local port first, then open Properties from the File menu and continue with the configurations.

3. From the file menu, select File > Properties.
4. To add a ZebraNet Connect IP port, in the Details tab select Add Port.
5. From the Add Port dialog, select Other, then select the ZebraNet Connect Monitor as the type of port to add.

Note • If ZebraNet Connect IP is not listed, verify that the software has been properly installed.

6. Click OK.

   The Add ZebraNet Connect Port screen opens. There is a list of all 10/100 Internal PS devices discovered on the network.
   - The TCP/IP monitor searches only the local subnet.

7. If the port you want to add is listed in the Ports Available on Local Subnet window, select the port name. If the port you want to use is not listed, you can:
   - Select Cancel and repeat step 5 to rediscover the 10/100 Internal PS devices.
   - In ZebraNet Connect IP, click the Locate Non-local Device button and enter the static TCP/IP address used for the 10/100 Internal PS.
8. Click Add.
9. To save the configuration, click OK.

Now you can use ZebraNet Connect IP. Whenever you print to the Windows printer configured with ZebraNet Connect IP, your print job will go directly to the 10/100 Internal PS port.

C

Hardware Troubleshooting

This appendix provides you with solutions to known issues.

Contents

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Troubleshooting the 10/100 PS

Defaulting the 10/100 PS on the ZM400 and ZM600 Printers

To default the 10/100 Internal PS to factory settings using the control panel, complete these steps:

Note • Only the ZM400 and ZM600 printers have a control panel. To default the print server on the G-Series printers, see *Defaulting the 10/100 PS and the GK420 and GX420/430 Printers*.

1. From the control panel, press Setup/Exit two times.
2. Press Plus (+ key) five times.
   The control panel will read **DEFAULT NET**.
3. Press Setup/Exit to save the change.
4. After the printer defaults all settings, the control panel will show **PRINTER READY**.

Defaulting the 10/100 PS and the GK420 and GX420/430 Printers

To default the 10/100 Internal PS and the printer to factory settings, complete these steps:

Note • The GK420 and GX420/430 printers default both, the print server and the printer, to factory default settings.

1. Turn on (**I**) the printer and let it complete its power-up cycle.
2. Press and hold the Feed button until you see four flashes of the LED. After the fourth LED flash, release the button to default the print server and the printer to factory settings.

10/100 Internal PS Network Status/Activity Indicator

For the ZM400 and ZM600 printers

Alongside of the RJ45 connector, there is a single LED containing a red element and a green element. By turning on and off different combinations of these two LED elements, the LED indicates Ethernet links, activity, and speed.

LED State	Description
Off	No Ethernet link detected
Amber	10 Mbps link detected
Amber, blinking	10 Mbps link detected and Ethernet activity detected
Green	100 Mbps link detected
Green, blinking	100 Mbps link detected and Ethernet activity detected

For the GK420 and GX420/430 printers

On the top of the RJ45 connector, two LEDs are provided for these printers. The left LED is green and the right LED is amber. Follow the table below to determine activity and status of the GK420 and GX420/430 printers.

Left LED State	Right LED State	Description
Off	Off	No Ethernet link detected
Off	Amber	10 Mbps link detected
Green, blinking	Amber	10 Mbps link detected and Ethernet activity detected
Green	Off	100 Mbps link detected
Green	Amber, blinking	100 Mbps link detected and Ethernet activity detected

ZebraNet View Utility Discovery or Configuration Problems

If you are having problems using the ZebraNet View utility to discover or configure the unit, check the following:

- Verify there is not a router between the workstation running ZebraNet View and the 10/100 Internal PS. Because the 10/100 Internal PS does not have an IP address, TCP/IP communication cannot be started across a router. Run ZebraNet View on the same subnet as the 10/100 Internal PS.
- Verify that the LED on the 10/100 Internal PS is active. Consult the chart above for details.

Unable to Print

If you are having problems printing, verify that there is communication between the 10/100 Internal PS and the printer. Suggestions include the following:

- Ping the printer to determine the ability to communicate with the printer. See *Ping the Printer*.
- Or open a Telnet session and send a ZPL command to print a configuration label. See *Telnet* on page 117 for more information.
- Check obvious error conditions such as head open, out of media, out of ribbon, etc.
- If problems persist, contact Technical Support.

Ping the Printer

To ping the printer, complete these steps:

1. Open a DOS window.

   To open a DOS window, click on Start > Run.

2. In the Open text box, type: `cmd`

3. From the DOS prompt, type:

   `ping xxx.xxx.xxx.xxx`

   where `xxx.xxx.xxx.xxx` is the IP address of the print server

4. See Figure 56. You see a reply from the print server indicating a connection.

Figure 56 • Example of a Successful Ping

```
C:\>ping 172.30.1.34

Pinging 172.30.1.34 with 32 bytes of data:

Reply from 172.30.1.34: bytes=32 time=8ms TTL=126
Reply from 172.30.1.34: bytes=32 time=25ms TTL=127
Reply from 172.30.1.34: bytes=32 time=6ms TTL=127
Reply from 172.30.1.34: bytes=32 time=23ms TTL=127

Ping statistics for 172.30.1.34:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 6ms, Maximum = 25ms, Average = 15ms
```

If the issue is a communication problem, you would have received an error message.

Telnet

Open a telnet session to send a ZPL command from a DOS prompt. This procedure can be used when running Vx.15.x or later firmware. In this example, a ZPL II command is used to cause a label to print.

Note • You do not need to open a telnet session if you pinged the printer using the previous procedure. The purpose of these two procedures is to identify whether your PC can communicate with your printer.

To open a telnet session on your PC, complete these steps:

1. Open a DOS window.

   To open a DOS window, click on Start > Run.

2. In the Open text box, type: `cmd`

3. From the DOS prompt, type:

   ```
   telnet xxx.xxx.xxx.xxx 9100
   ```

   where `xxx.xxx.xxx.xxx` is the IP address of the print server.

   This will connect your PC to the 10/100 Internal PS through the parallel port of the printer.

4. Enter `~WC`.

   This ZPL command will print a configuration label on your printer.

5. Click the **X** in the upper right-hand corner of the window to exit.

If the configuration label prints, the issue is not a communication problem between the printer, the print server, or the PC.

Unable to Configure Device

To assign an IP address to a ZebraNet 10/100 Internal PS using ZebraNet View, you must be on the same subnet. If ZebraNet View has Multicast enabled, you may be able to view the ZebraNet 10/100 Internal PS on another subnet, but you will not be able to configure the device.

Notes •

D

Print Protocols

In this appendix, an exercise is provided to experiment with **F**ile **T**ransfer **P**rotocol (FTP) support.

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FTP 120

FTP

Embedded within the 10/100 Internal PS is an FTP server application that processes file transfers from a host computer to the printer.

If the printer is on a network, label formats can be generated and data can be transferred without setting up a print queue.

To send information to the printer in a Windows environment, try this exercise:

1. In a text editor, generate the following ZPL II code:

   ```
   ^XA
   ^FO100,100
   ^CF0,55^FDZebra Technologies^FS
   ^XZ
   ```

2. Save the file and name it `test.txt`.

3. Open the MS-DOS Command Prompt and type:

   ```
   ftp <IP of 10/100 PS>
   ```

   Example • If the IP address of your 10/100 Internal PS device is `12.3.4.123`, you would type:

   ```
   ftp 12.3.4.123
   ```

   This opens a session with the FTP server.

   Note • The default user name is `blank`.

4. Type your user name and press Enter.

5. Type:

   ```
   put test.txt
   ```

   This transfers `test.txt` to the printer, and the printer generates a label.

6. To terminate the FTP session, type:

   ```
   quit
   ```

E

Print Queues

This appendix provides information and instructions on configuring your print queue.

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Berkeley Software Distribution (BSD)-Style Print Queue

BSD is a version of the UNIX OS that includes TCP/IP.

Configuring the Print Queue

For remote BSD-style LPD printing, add the 10/100 Internal PS as a remote printer in the /etc/printcap database to each host printing to the 10/100 Internal PS. You can add printcap options as needed. If you are unfamiliar with these options, consult the printer documentation.

Important • You must be logged in as `root`.

The entry looks similar to this:

```
local_print_queue_name|[printer_model_and_manufacturer]:\
:lp=:mx#0:rm=ZebraNet_name:\
:rp=remote_print_queue_name:\
:sd=path_to_spool_directory:lf=just log_file_name
```

`local_print_queue_name` — This defines the name of the printcap entry. It is used by the LPR/LPD utilities to specify which printcap entry is being referenced. Additional printcap entries can be added as needed for different queue types. Each entry must have a unique local_print_queue_name and a different spool directory to work properly. When you are ready to print, use the local_print_queue_name that matches the data type of the file to be printed.

`ZebraNet_name` — This is the name (alias) of the ZebraNet 10/100 Internal PS. This must be the same name as entered in the `/etc/` hosts file or your NIS or DNS system. An IP address may also be used here.

`remote_print_queue_name` — This entry determines the ZebraNet port where the print job will be printed and optionally specifies ASCII printing that must end for `LF1`.

`path_to_spool_directory` — This is the path to a directory where the print jobs will be spooled for this queue. You must create a unique spool directory for each printcap entry.

`log_file_name` — This is the path to a file where error information from the LPD will be logged.

Example • Your printcap entries might look similar to this:

```
Ascii_files|form.feed.Queue_on_Port_1:\
:lp=:mx#0:rm=pserver1:rp=MYQUEUELF1:\
:sd=/usr/spool/myqueuelf1:\
        :lf=/usr/spool/myqueuelf1/queue.log
```

Important • Each printcap entry must have a different spool directory to work properly.

System V Queue Installation

Configuring Operating System V Queue for ZebraNet Printing

This section describes the configuration of the printing system on the UNIX operating system. For clarity and brevity, the following specific names are used to represent general devices or concepts.

`lj4` — The local queue name on the UNIX system to which you want 10/100 Internal PS print jobs directed.

`ZEBRAPRINTER` — The host name or IP address of the remote system that is the 10/100 Internal PS device. For example, to Telnet to the 10/100 Internal PS and invoke the 10/100 Internal PS configuration utility, you would enter:

```
Telnet ZEBRAPRINTER
```

A host name is not required for the 10/100 Internal PS — the IP address can be used.

`yourqueuename` — This is the name of the queue on the ZebraNet and must end with `LF1`.

Prerequisites

Before you proceed, the following prerequisites must be met:

- The name ZEBRAPRINTER and the IP address assigned to the 10/100 Internal PS are in the /etc/hosts file on the UNIX system.
- The LPD must be running on the UNIX system.

Spool Print Job Configuration

To configure the UNIX machine so users can spool print jobs to the PCL print queue on the ZebraNet named ZEBRAPRINTER, complete these steps:

1. Log in to the UNIX machine as root.
2. Type:
   ```
   lpsystem -t bsd ZEBRAPRINTER
   ```
3. Type:
   ```
   lpadmin -p lj4 -s ZEBRAPRINTER!yourqueuename - I any
   ```
4. Type:
   ```
   accept lj4
   ```
5. Type:
   ```
   enable lj4
   ```
6. Try printing by typing the command:
   ```
   lp -d lj4 [filename]
   ```

Notes • _____

F

Frequently Asked Questions

This appendix provides a group of frequently asked questions (FAQs) about 10/100 Internal PS.

FAQs

Can the ZebraNet 10/100 Internal PS option work on a computer network that is running both TCP/IP and IPX protocols simultaneously? Yes. The ZebraNet 10/100 Internal PS runs all of its available protocols simultaneously. This means that the ZebraNet 10/100 Internal PS can run on mixed networks such as a network using Microsoft, and UNIX.

Important • The ZebraNet 10/100 Internal PS does not support IPX, but it can function on networks that use IPX protocols.

Will the ZebraNet 10/100 Internal PS allow connectivity to anything other than a PC network? Yes. The ZebraNet 10/100 Internal PS allows connectivity to systems such as IBM's AS400, provided that it is configured using TCP/IP.

What if a print job makes it to the queue, but never leaves the queue? The label does not print. These are the things to check:

- Confirm that the printer is turned on and receiving power.
- Confirm that the network cable is plugged in and that you can ping the printer.
- If the previous bullets do not change the outcome, it is likely that there was a misconfiguration while creating the queue. The queue must be recreated verifying the following:
  - Confirm that you use the print server's valid IP address.
  - If you are using a UNIX or AS/400 host, there is an option for the remote queue name. There is only one valid response to use: PORTLF1.
  - If Windows does not have LPR installed, the above required option should be left blank.
  - See the documentation for other operating system specific queue creation.

What are the minimum requirements to network a printer?

- Cat-5 network cable with 10BaseT connectors
- 10/100 Internal PS
- Hub or Switch
  - If a hub or switch is NOT used, you need a cross-over cable.
- Workstation running a TCP stack with print services installed.

What is the default User ID and password for the print server?

- The User ID is **admin** and the password is **1234**.

What ports are open on 10/100 Internal PS and related software?

TCP Ports:

- 21 FTP
- 23 Telnet
- 80 HTTP Server
- 515 Printer port
- 9100 Raw socket connection

UDP Ports:

- 161 SNMP broadcast from 10/100 Internal PS
- 162 SNMP trap on ZebraNet Alert
- 4201 discovery destination on 10/100 Internal PS
- (dynamic) SNMP get request from ZebraNet View
- (dynamic) discovery broadcast from ZebraNet View
- (dynamic) discovery broadcast from ZebraNet View Java

What are my network connectivity options based on when using a 10/100 Internal PS?

It depends on your environment, but the print server accepts print jobs in any of the following ways:

- FTP — ZPL/EPL files can be sent to the printer as standard ASCII files via an FTP client.
- HTTP — Using the script option on the printers Directory web page, you can type ZPL into a specified location of the Web browser and send it to the printer.
- LPR/LPD — Sometimes referred to as queue-based printing. LPR/LPD is the standard in network printing. Most TCP/IP operating systems are compatible with this option.
- Raw socket connection — You can connect to the printer directly via the network, bypassing *everything in between*. This option is commonly used to integrate ZPL/EPL into existing programs, such as VB scripts.
- POP3 — With proper configuration, you can place valid label format instructions into the body of an email, and it will print. The print server periodically checks this email box at the specified intervals and prints the body of the message.
  IMPORTANT: Attachments and subject lines are not supported.

Notes •

Glossary

10BaseT A type of Ethernet that uses unshielded twisted pair cable.

100BaseT A type of Ethernet that can transmit 100Mb of data per second with a twisted-pair cable.

ARP The standard TCP/IP method for determining the actual network address of a device based on its IP address.

ASCII A standard for the binary representation of characters.

BOOTP BOOTP (Bootstrap Protocol) is a protocol that lets a network client configure automatically. It can automatically configure any of the following information: IP address, gateway, subnet, system name, name server, and more. It automatically assigns the necessary settings from a pool of pre-determined addresses for a certain duration of time. BOOTP is the basis for a more advanced network manager protocol, the DHCP (Dynamic Host Configuration Protocol).

broadcast In a network, a situation when all destinations on the network receive a given packet.

client A workstation or PC in a client/server environment.

community For SNMP, a relationship between an agent and a set of SNMP managers that defines security characteristics. The community concept is a local one, defined at the agent. Each community is given a unique community name.

current mode (parallel port) A mode that the printer and print server negotiate.

DHCP (Dynamic Host Configuration Protocol) DHCP is an alternative to another network IP management protocol, Bootstrap Protocol (BOOTP). Like BOOTP, DHCP can configure an IP address, gateway, subnet, system name, and name server. When speaking about the 10/100 Internal PS, BOOTP, and DHCP configure the same options.

delete bytes This number is used to remove characters from the beginning of every job sent to the logical printer. The value for delete bytes can range from 0 to 255.

dynamic A dynamic configuration, as the name implies, means that it changes. BOOTP and DHCP offer time-based leases for the configurations they assign. Their changes depend on the time-based lease, and how often the printer itself is offline and online again. A dynamic configuration can include BOOTP or DHCP.

Ethernet A widely used local area network system based on the IEEE 802.3 standard.

firmware Software routines that are stored in ROM (Read Only Memory). This is typically part of a device, such as a printer or 10/100 Internal PS.

FTP File Transfer Protocol, a TCP/IP-related protocol for transferring files between devices on a network.

Flash memory A type of memory that allows read-and-write operations, but permanently stores data when the power is turned off. Useful for storing firmware because it can be easily updated by downloading new code.

gateway A device that converts one higher-level network protocol to a different higher level protocol.

gleaning A temporary, local configuration option. Gleaning lets you add the address of the device you want to configure to your local workstation's ARP table. This configuration is not permanent and is valid only from the workstation from which you entered the ARP information. After the information is entered into the workstation's ARP table, the user follows up with a Telnet session to enter the information permanently. This configuration option is used mostly by non-Windows workstations that cannot run the ZebraNet View configuration utility.

IP Internet Protocol, a packet-based protocol used for delivering data across networks.

IP address A network address used by the TCP/IP protocol.

JetAdmin A Hewlett-Packard printer management program available for NetWare and TCP/IP.

logical Refers to conceptual rather than physical. For example, a computer might have a single physical connection to the network (an Ethernet adapter card), but could have logical connections to several other devices on the network.

LPD LPD stands for Line Printer Daemon; it is the part that receives and processes the request. A "daemon" is a server or agent.

MAC Address Media Access Control. Ethernet address that corresponds to the assigned IP address.

name server A workstation on a TCP/IP network that provides a list of all workstations on the network.

node A device connected to a network, such as a computer or print server.

parallel port A port on a device that sends information in groups of bits over multiple wires, one wire for each bit in a group.

ping A TCP/IP command that determines whether a device is accessible on the network.

POP3 Post Office Protocol, the protocol used to retrieve email from the server.

port A physical connector, such as the parallel port, or a logical connection to a device.

post-string A string that is sent at the end of every job going to the logical printer. Maximum 64 characters long.

pre-string A string that is sent at the beginning of each job that goes to the logical printer. Max 64 characters long.

print server A device in a network that changes a network protocol into a printer protocol.

protocol A method of sending and receiving data between two or more workstations on a network, and ensuring that the data is received without errors.

RARP Reverse Arp, a standard TCP/IP method of determining a device's IP address based on its Ethernet address.

raw TCP port A type of TCP port in which data is passed unmodified to the receiving node.

RJ45 A type of modular jack connector similar to a telephone connector with up to eight wires. Used for 10BaseT Ethernet connections and for serial port connections.

serial port On a printer or print server, a port that transfers data one bit at a time. Serial ports usually have either a 25-pin, 9-pin "D," or RJ-45 connector setting mode (parallel port).

A mode that the print server is set to for the highest level of parallel port communications.

server A device on a local area network that provides services to client computers on the network.

SMTP Simple Mail Transfer Protocol, a protocol used to send email messages over the Internet.

SNMP Simple Network Management Protocol, a protocol for monitoring and controlling devices on a network.

spooling In printing applications, spooling is the transfer of data to a temporary storage area on disk (the print queue) prior to printing. Spooling allows many jobs to be queued to a single printer.

static Refers to a static IP address. All information is provided by the network administrator.

subnet mask A TCP/IP method of dividing a network into several smaller subnetworks.

TCP/IP Transmission Control Protocol/Internet Protocol, the de facto standard for Internet communications that is widely used on local area networks.

TCP Port A method of accessing a TCP/IP service, where a device with a single IP address can have multiple TCP ports.

Telnet A TCP/IP protocol that allows two devices to communicate over a LAN.

trap An unsolicited message sent by an SNMP agent to an SNMP management station. It notifies the management station of some unusual event.

UNIX A general-purpose computer operating system used on many different kinds of computers.

Windows 95 and Windows 98 Microsoft's PC operating systems that feature built-in peer-to-peer networking.

Windows NT Microsoft's multitasking operating system that can be used either as a client or as a server.

Windows 2000 Microsoft's multitasking operating system that replaces Windows NT; can be used as either as a client or as a server.

ZebraNet PrintServer II An Ethernet connectivity solution.

ZebraNet 10/100 Print Server An Ethernet connectivity solution.

ZebraLink Allows you to connect and control your bar code printers anywhere and anytime.

ZPL II Zebra Programming Language II is a powerful label-definition and printer-control language.

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Zebra Technologies Corporation
333 Corporate Woods Parkway
Vernon Hills, Illinois 60061.3109 U.S.A.
Telephone: +1 847 793 2600
Facsimile: +1 847 913 8766

Zebra Technologies Europe Limited
Zebra House
The Valley Centre, Gordon Road
High Wycombe
Buckinghamshire, HP13 6EQ, UK
Telephone: +44 (0) 1494 472872
Facsimile: +44 (0) 1494 450103

Zebra Technologies Asia Pacific, LLC
120 Robinson Road
#06-01 Parakou Building
Singapore 068913
Telephone: +65 6858 0722
Facsimile: +65 6885 0838

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